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AOR 000

From the Editor's Desk

Fred Clarke is one of the world's leading hybridists, especially in regards to *Catasetum* alliance hybrids and colourful and compact Cattleyas. He has become a highly regarded speaker on his trips to Australia, bringing along with him flasks of the very latest cutting-edge hybrids. This has already seen a marked increase in quality in these groups in Australia, with a number of Fred's hybrids already being awarded here. In this issue, Fred discusses the main species used in *Catasetum* breeding, as well as showcasing come of the very latest hybrids. The range of colours and forms is quite breathtaking.

And of course Fred is well known for creating the "Black Orchid" – known as *Fredclarkeara*. The grex *Fredclarkeara* After Dark have yielded many high awards. Shown here is the cultivar 'Black Diamond' FCC/AOS.

The annual Victorian Orchids of the Year results are included in this issue. You will agree that the culture of many of these orchids are superb. Apart from the quality of individual blooms, the whole plant, floriforousness and presentation are all taken into account.

The Australian Orchid Council's Conservation Officer, Alan Stephenson talks about the careless destruction of a rare south coast (NSW) colony of the native evergreen terrestrial *Calanthe*. It's a travesty that such plants are just flattened by heavy machinery without the local orchid society or garden club being consulted beforehand to rescue the condemned plants. The "powers that be" seem to have a complete "couldn't care less" attitude. I am sure there are similar scenarios in northern Queensland after the recent cyclones, which would have left countless epiphytic orchids now rotting on the ground. But you would be hit with the full force of the law if you tried to rescue a single plant.

David Jones and Chris French describe another four new terrestrial orchid species from Western Australia - from the *Pterostylis nana* complex, with Bob Bates discussing a poorly known beard orchid (*Calochilus*) from South Australia. The *AOR* continues to publish the latest in Australian native orchids.

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Cover Shot

***Catasetum* Frilly Doris 'SVO'** owned by Fred Clarke of Sunset Valley Orchids, California, USA. Photographed by David P. Banks on his North American trip in 2011. Read all about Catasetums in the feature article of this issue.

Understanding, Enjoying and Growing *Catasetum* Species and their Hybrids

Text and photos by Fred Clarke

For years, Catasetums have been considered "botanical oddities," of interest mainly to the serious enthusiast. But that situation is changing. Few orchids go through such dramatic seasonal changes, and hobbyists are discovering how interesting, fun and rewarding these plants are to grow and flower.

Pronounced (kat-ah-SEE-tum), (*cata* from the Greek indicating 'downward' and *seta* from the Latin meaning 'bristles'), Catasetums vary widely in both flower shape, and colour. This genus includes nearly 180 described species ranging over a large area from Mexico, through Central and South America, with the species largest concentration of species in Brazil.

Catasetum flowers are sexually dimorphic. They are not perfect flowers like most orchids that have both a stigmatic surface and pollinia in each blossom. Instead, Catasetums either have male 'staminate' or female 'pistillate' flowers that are quite different in appearance. The male flowers are very showy and each has a pollen-ejecting trigger below the column. The female flowers are helmet-shaped, generally green, and the column has a narrow slot to allow access to the stigmatic surface.

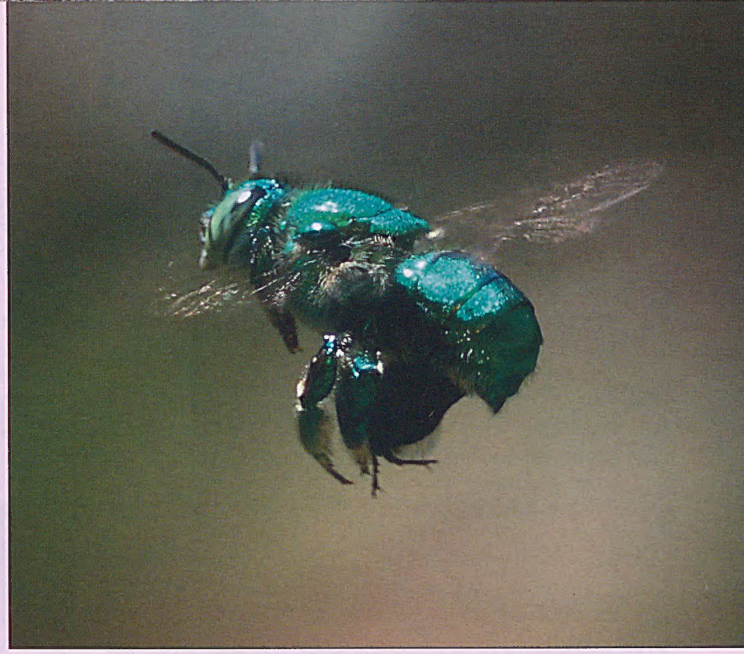
So why did Catasetums evolve sexually dimorphic flowers? Many orchid flowers have specialised pollination mechanisms that help to avoid self-pollination, but with male or female flowers, Catasetums have almost eliminated that possibility. What an amazing path Catasetums have taken to promote their genetic diversity by evolving the most advanced self-pollination avoidance mechanism... male and female flower forms!

All *Catasetum* flowers are fragrant, but not in a perfume-like way. Instead, fragrances are, reminiscent of a mixture of pine, eucalyptus, mint, and cinnamon. These fragrance compounds attract male *Euglossine* bees that collect the compounds and adorn themselves with it. It is theorised that these fragrances help the male to be more attractive to female bees. As the male bee touches down on the lip of a male *Catasetum* flower to collect the fragrance, it comes in contact with the pollen-ejecting trigger and releases the pollen. The pollen is ejected with considerable force and speed, which is faster than the human eye can follow. There is a sticky pad on the stipe of the pollinium, which adheres the pollen to the bee's body. The shock of such a forceful hit knocks the bee away from the male flower, an experience not quickly forgotten.

The helmet-shaped lip of the female flower has the fragrance compounds located near the top of the helmet. The female flowers don't look like male flowers, so the male bee, perhaps traumatised by his encounter with the male *Catasetum* flower is willing to enter. The helmet is a confined space with just enough room for the bee to fit inside. However, the tight space requires the bee to exit backwards. Upon exiting, the pollen stuck to its back from the earlier visit to a male flower will be deposited through the slot in the column onto the sticky stigmatic surface. The slot closes a few minutes after pollination, greatly reducing the chances of a second pollinator. How fantastic is that!

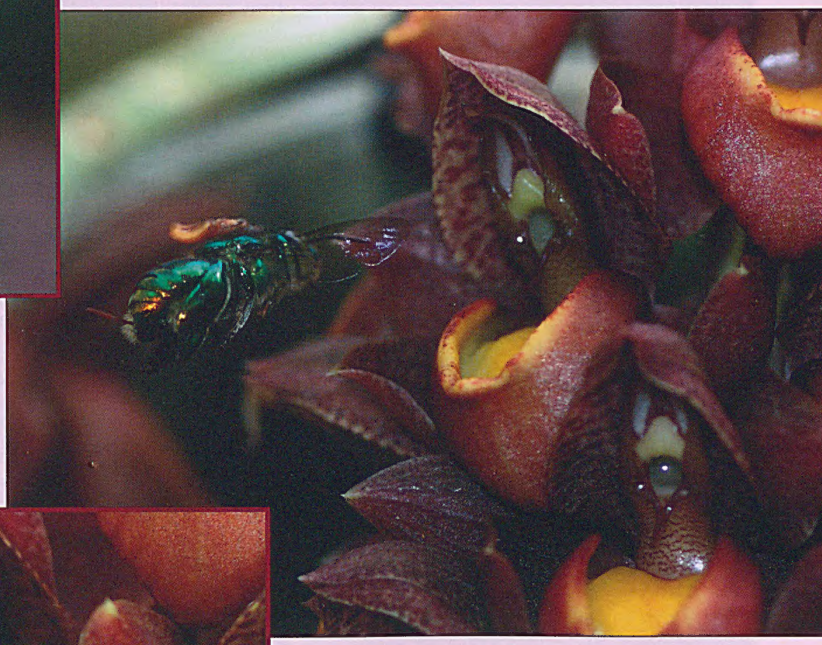
Above: *Euglossine* bee & female flower *(photo: Juan Fernandez)*

Above: *Euglossine* bee in female flower
(photo: Juan Fernandez)



Above: *Euglossine* bee
(photo: Juan Fernandez)

Right: *Euglossine* bee & male flower
(photo: Juan Fernandez)



Below: *Euglossine* bees
(photo: Juan Fernandez)

It appears that the quality of the environment in which Catasetums grow influence the different sexual flower forms. Male flowers are generally produced when growing conditions are not quite optimal. When plants don't get enough light or too much light and are stressed from lack of moisture, the result is a smaller plant. The female flowers are often produced under optimal growing conditions, which result in large, robust plants. These robust plants are more capable of carrying seed capsules through the dry winter dormant period, when weaker plants could perish.

Cultivation

To grow Catasetums well, it is helpful to understand the conditions under which they grow naturally. Catasetinae live where there are two distinct climate patterns, a hot, humid and rainy monsoonal summer followed by a cool, dry winter. Catasetums have adapted to these climatic conditions by having a growth phase in the summer and a rest period or dormancy during winter, when the leaves yellow and drop off. When the plants are dormant, little or no water is needed, as the pseudobulbs store enough moisture and nutrients to survive until the following summer.

Catasetum plant culture is not difficult, but it's important to understand the growth cycle watering requirements. The plant's vegetative state signals to their changing needs to the grower. Interpret the signals and make the appropriate cultural adjustments. Here is what to look for:

Early-Season (**Spring**): Catasetums begin their new growth in early spring. This next sentence is very important. "Begin watering after the new growth has developed new roots approximately 8-13cm long." I believe that Catasetinae roots deteriorate during dormancy and in the following year they are not as effective at taking up moisture. This makes the new root system vital to the plants health. Remember, wait to water until the new roots are 8-13cm long.

Mid-Season (**Summer**): This is the growth period when the plants are rapidly developing their new pseudobulbs. During these 3-4 months, keep the plant's root zone evenly moist. Plants require constant moisture, and in most cases irrigation will be needed 2 or 3 times a week. Fertilise with a balanced fertiliser at ½ strength for each watering. Bright light levels for Catasetums will help insure strong growth and flowering. This is the time when the fruits of your labour will begin to pay off, as the flowering season will be underway soon.

Late Season: In the late **Autumn**, the plants will begin to enter the dormancy phase. The signs of impending dormancy in nature are the end of rainy season, shortening day length and the cooler night temperatures. When these conditions occur, the leaves will begin to yellow and turn brown. At this time stop fertilising and reduce watering by half, simulating the end of the wet season. This also begins the hardening off of the pseudobulbs in preparation for dormancy. When most leaves are yellow/brown and have dropped off, cease watering altogether. This is the dormant period. For plants grown by hobbyists, the onset of dormancy is caused by several factors: the maturity of the pseudobulb, shortening day length, cooler day/night temperatures and a reduction of root zone moisture. Generally, this process occurs naturally; however when the plants are cultivated in warm growing areas such as in the home or under lights, dormancy sometimes needs to be encouraged. I have found that stopping watering in mid-winter, regardless of the number of green leaves, will trigger the dormancy.

Light levels, Temperature, Humidity, and Air Movement: Catasetums like light levels comparable to Cattleyas at about 2500-3000 foot candles (fc). Temperature should range: summer days from 24-35°C, summer nights 15-20°C, winter days 16-24°C, and winter nights 13-18°C. Humidity is best between 50-75%, and air movement should be substantial for best growth.

Repotting and Dividing: Do this as the new growth is just starting to develop and before the new roots start to show (remember: no watering until the roots are well established, 8-12cm long. Unlike most orchid plants, Catasetums do well when divided into 2-bulb pieces. Divisions are made by cutting with a sterile tool or by pulling the bulbs apart. I try to keep the size of my plants between 2 and 5 pseudobulbs.

Potting Mix and Containers: For mature plants, use a mix with a ratio of 3:1 of fine pine bark and medium perlite. For seedlings and young plants up to a 10 cm pot, New Zealand sphagnum moss works well, with the bottom 1/3 of the pot filled with styrofoam peanuts. Plastic pots are great, however clay pots, baskets, and cork slabs will all work. Catasetums don't like to be over potted; select a pot size that will allow for 2 years of growth.

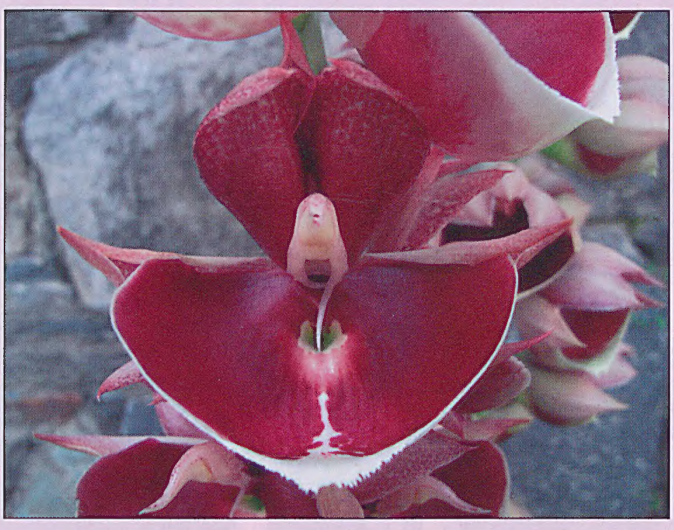
Virus: Catasetums can become infected with the common orchid viruses. As a precaution, treat every plant carefully to avoid spreading virus. When repotting, use disposable gloves that you change between plants, sterilise all cutting tools, use new or sterilised pots, and use a fresh sheet of newspaper under every plant you are repotting.

Insect Pests: Catasetums are generally pest-free, however spider mites are attracted to the soft leaves of these plants. Spider mites are quite small and may be hard to see with the naked eye. They live and feed on the undersides of the leaves. Use a magnifying glass or try rubbing the underside of the leaf with a tissue and look for them on the tissue. Take care in checking for them, as early detection is very helpful. Mites are not actually insects, but belong to the related class *Arachnida*, which also contains spiders, and scorpions. Be sure to use a recommended miticide from your garden centre for treatment.

The Species

Catasetum pileatum has the largest flower of the genus, with inflorescences that carry up to 13 flowers and lips the size of the palm of your hand. These characteristics make *Catasetum pileatum* an important parent in breeding. The flowers are typically pale green, but white, yellow, red clones (var. *imperiale*) exist. Flower life is usually 6-10 days, and well-grown plants can produce 2-4 inflorescences from a newly matured pseudobulb.

Right: *Catasetum pileatum* 'Dinner Plate'



Left: *Catasetum pileatum* 'Pierre Couret'

Below: *Catasetum pileatum* 'SVO Independence'

Catasetum expansum gets its name from its flat expanded lip, which remains somewhat square in most clones. The flowers are green to yellow, either with or without spots, but there is always a raised callus in the centre of the lip. Flower life is usually 6-10 days, and mature plants have been known to produce 5 inflorescences a season, carrying up to 18 flowers each.

Right:
Catasetum expansum
'SVO'

Left:
Catasetum expansum
'SVO Midori' AMAOS

Below:
Catasetum expansum
('Linda' x 'Myra')

Catasetum tenebrosum once considered the "black orchid," produces dark brown flowers with a chartreuse lip and is much used in hybridising. This species is one of the first to bloom after dormancy and, if grown well, will bloom again later in the season. The flowers last 10-15 days, with as many as 24 flowers per inflorescence.

Right:
Catasetum tenebrosum
'#3' Male flowers,
5.5 cm

Catasetum fimbriatum is named for its fimbriate (frilly) lip. The flowers are pale chartreuse overlaid with short maroon bars and spots except at the fimbriate lip margin. The centre of the lip is yellow and bears a V-shaped callus. This species can produce up to 30 flowers and will bloom 2-3 times a season. The rare and unusual variety *morrenianum* can have a beautiful, dark wine-red flower and is very collectable.

Above:
Catasetum fimbriatum
'Golden Horizon'

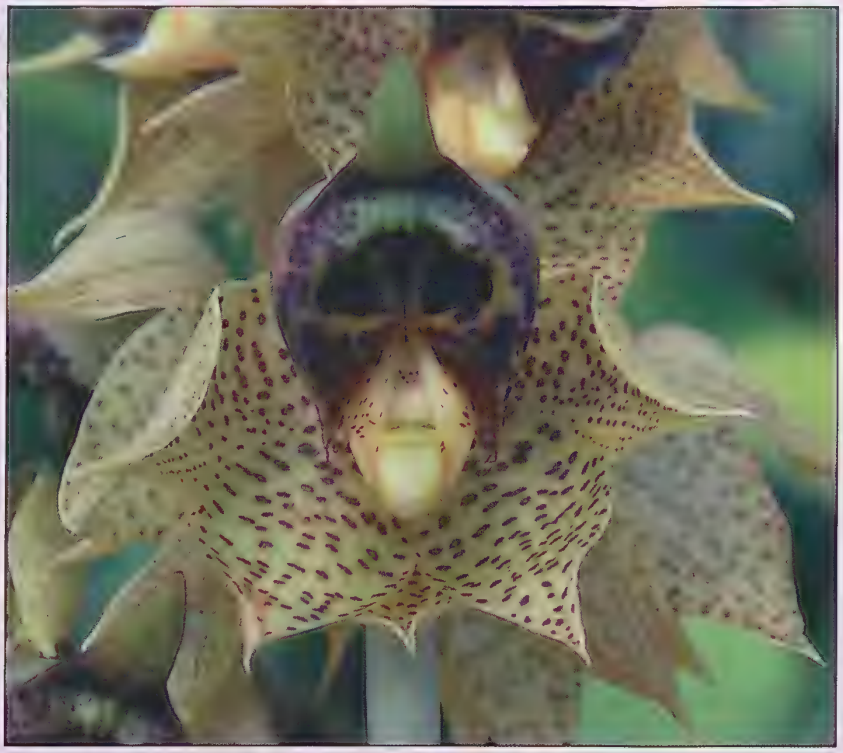
Right:
Catasetum fimbriatum
var. *morrenianum*
'SVO'

Catasetum denticulatum has a most attractive, densely-flowered inflorescence of cream flowers with slightly rounded and cupped segments boldly spotted with maroon. The lip base colour is yellow and the spotting is finer with a toothed (dentate) margin that gave this species its name. Mature plants will bloom on the developing growth, recently matured growths and again in the late season on mature growths. This compact species was discovered about 20 years ago and produces 15cm pseudobulbs. The small stature of this species has played an important role in reducing the size of *Catasetum* hybrids.

Right:
Catasetum denticulatum
- sibling cross

Left:
Catasetum denticulatum
'SVO'

Catasetum sanguineum has super flowers! They are non-resupinate, and the lip looks a bit like a monkey-face with big black eyes. The sepals and petals are wide with pointy tips and form a half circle collar around the monkey face lip, with a black-marked callus. The "collar" colour is cream with maroon spots. The 60cm long inflorescences are erect and hold 10-15 blooms high above the foliage.



Right:
Catasetum sanguineum

Below:
Catasetum lucis
(photo: Arthur Pinkers)

Catasetum lucis is most unusual in that it has the longest erect inflorescence of the genus. The plant is so huge that you can't miss this fact either! Individual pseudobulb measure about 75cm tall and the inflorescence can reach 150cm in length! The species was described only recently (1994) and one has to wonder how it could have been missed! The inflorescence carries 12-18 green flowers with a rounded three-lobed white lip. The mid-lobe is folded under, leaving the pollen triggers well exposed below the lip.

Other interesting *Catasetum* species pictured here include:

Catasetum spitzii, Catasetum vinaceum, Catasetum saccatum, Catasetum tigrinum, Catasetum kleberianum, Catasetum barbatum, Catasetum gladiaturum, Catasetum roseo-virens, Catasetum globiflorum.

Right:
Catasetum spitzii
'Red 48'

Below:
Catasetum spitzii
'Light Green'

Below:
Catasetum spitzii
'Yellow Goddess'

Above:
Catasetum spitzii
'SVO Amber'

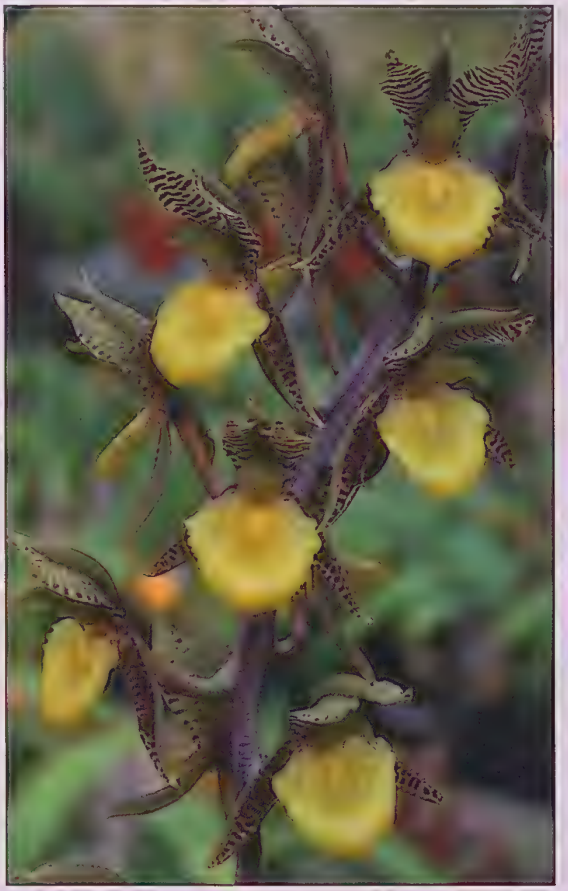
Below:
Catasetum spitzii
'Yellow Sunshine'

Left:
Catasetum tigrinum
'SVO'

Above:
Catasetum vinaceum
'Sunset Valley Orchids' HCC/AOS

Below:
Catasetum saccatum

Above:
Catasetum barbatum
'SVO' HCC/AOS



Below:
Catasetum roseo-virens

Above:
Catasetum kleberianum
'SVO'

Below:
Catasetum gladiaturium

Left:
Catasetum globiflorum

Right:
Catasetum callosum
'SVO Black Lip'
AM/AOS

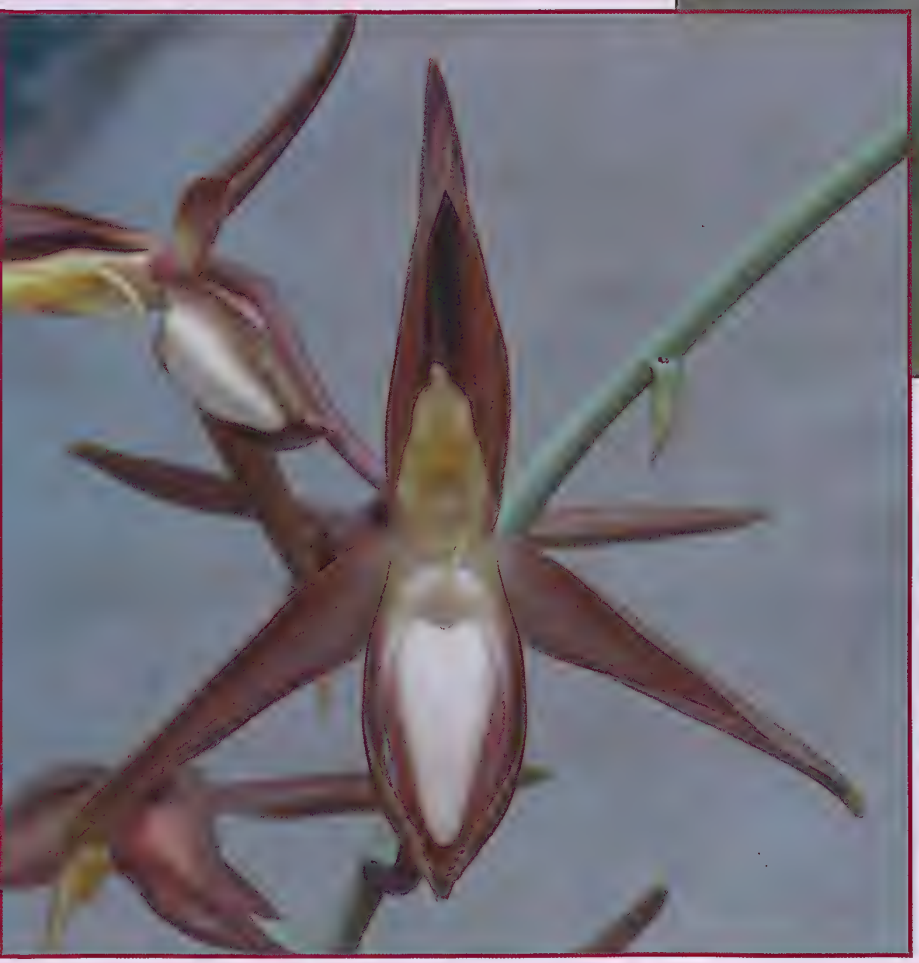
Left:
Catasetum cirrhaeoides
'SVO 54'

Above:
Catasetum cirrhaeoides
'SVO Darkness'

Below:
Catasetum osculatum

Above:
Catasetum schmidtianum

Above:
Catasetum schunkei



Left:
Catasetum tabulare

The Hybrids

Catasetum hybrids have the potential to produce an almost infinite variety of flower shapes and colours. The diversity is due to the wide variety of species come in many different colours, shapes and sizes - a hybridiser's dream. The first notable hybrid, which originated from the nursery of Jones & Scully in Florida, USA was *Ctsm.* Orchidglade (*pileatum* x *expansum*). This was followed by *Ctsm.* Susan Fuchs (Orchidglade x *expansum*) bred by R.F. Orchids also from Florida. From this beginning, a few hybrids began appearing from several breeders, and Catasetums enjoyed a brief period of attention by hobbyists during the late 1970 and 1980's. By the early 1990's, they fell out of favour, but by the late 1990's and early 2000's they made their re-appearance and are now widely popular. The development of hybrids like *Ctsm.* Donna Wise (Orchidglade x *tenebrosum*), *Ctsm.* Penang (Susan Fuchs x *pileatum*), and *Ctsm.* Portagee Star (*pileatum* x Black Knight) really got the attention of collectors.

More recently, flower quality standards have been elevated with the development of hybrids such as *Ctsm.* John C. Burchett (João Stivalli x Susan Fuchs), *Ctsm.* Louise Clarke (Donna Wise x Susan Fuchs), and *Ctsm.* Mark Dimmitt (Donna Wise x Orchidglade).

So where does *Catasetum* breeding seem to be headed in the future? As we are all aware, our orchid collections have a tendency to use up any available space. One important direction involves reducing plant size. Here are some new, noteworthy and compact-growing hybrids using *Catasetum denticulatum* as one parent. All of these grexes are 15-20cm tall at maturity, flower 2-4 times a season and have very colourful blooms: *Ctsm.* Karen Armstrong (x Susan Fuchs), *Ctsm.* Chuck Taylor (x Portagee Star), *Ctsm.* Melana Davison (x Penang), and *Ctsm.* Alexa (x Bela Vista's Sangria).

If you are just getting interested in Catasetums, I am sure you will be surprised by how easy these are to grow and then be "blown away" by how spectacular the flowers are. If you already have been growing them you understand...

(Fred Clarke owns and operates Sunset Valley Orchids, located in San Diego, California, USA. His interest in Catasetums spans over 25 years, and he is recognised as one of the foremost breeders of this genus. His hybridisation efforts have created many hybrids that are garnering awards in judging systems around the world. He has developed the new genus *Fredclarkeara* After Dark (*Mormodia* Painted Desert x *Ctsm.* Donna Wise), it is an amazing hybrid that has produced "the blackest flowers the American Orchid Society Judges have seen." Worldwide, this grex has received over 42 awards including eight of the coveted First Class Certificates (FCC's) from the American Orchid Society.)

Fred Clarke will be attending the Australian Orchid Council Conference and show at the Mackay Entertainment and Convention Centre this September 18-23, 2015 in Mackay, Australia. He will be presenting talks on Catasetinae and Cattleyas. He will also have flasks for sale of the latest breeding in Catasetinae and Cattleyas, for a list please E-mail: fred.clarke@att.net

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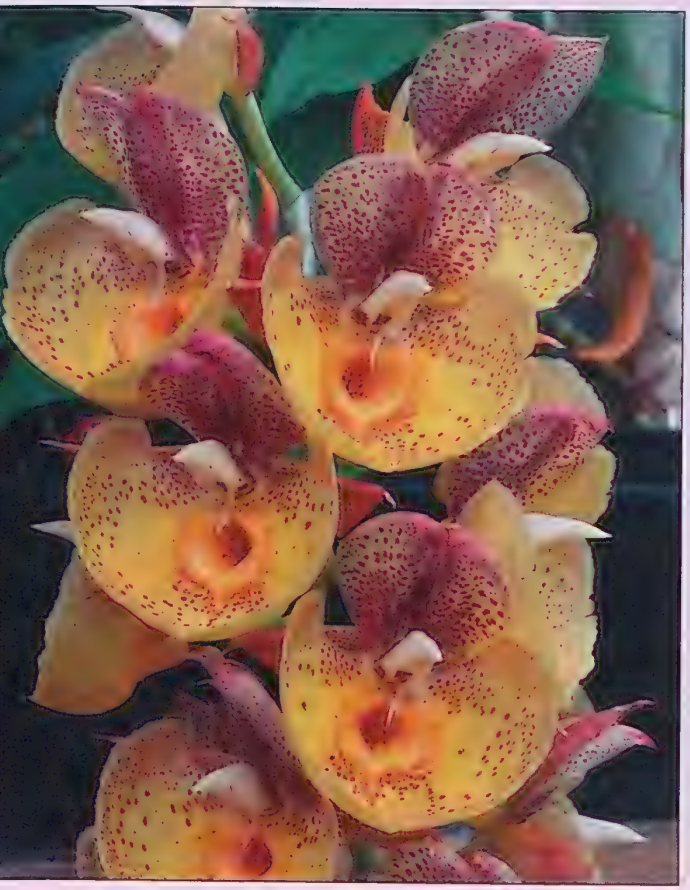
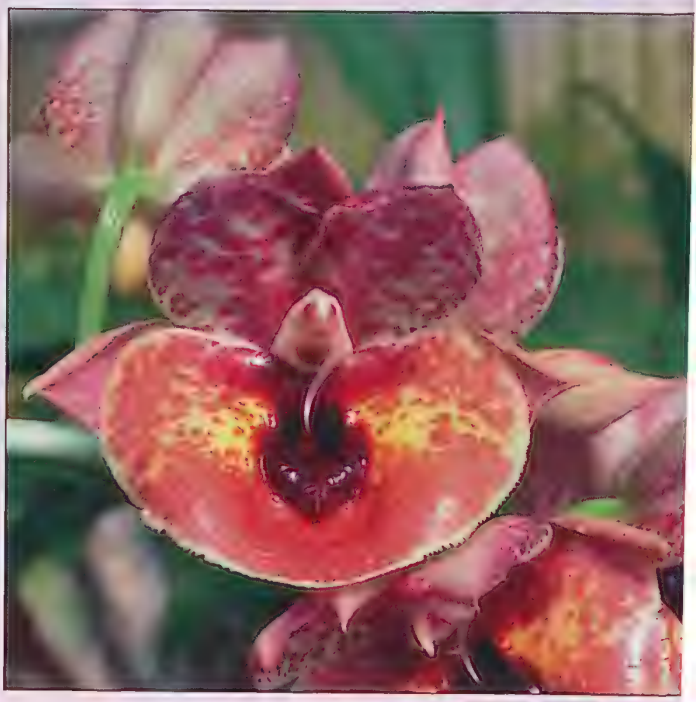
San Diego, California, USA.
Email: fred.clarke@att.net

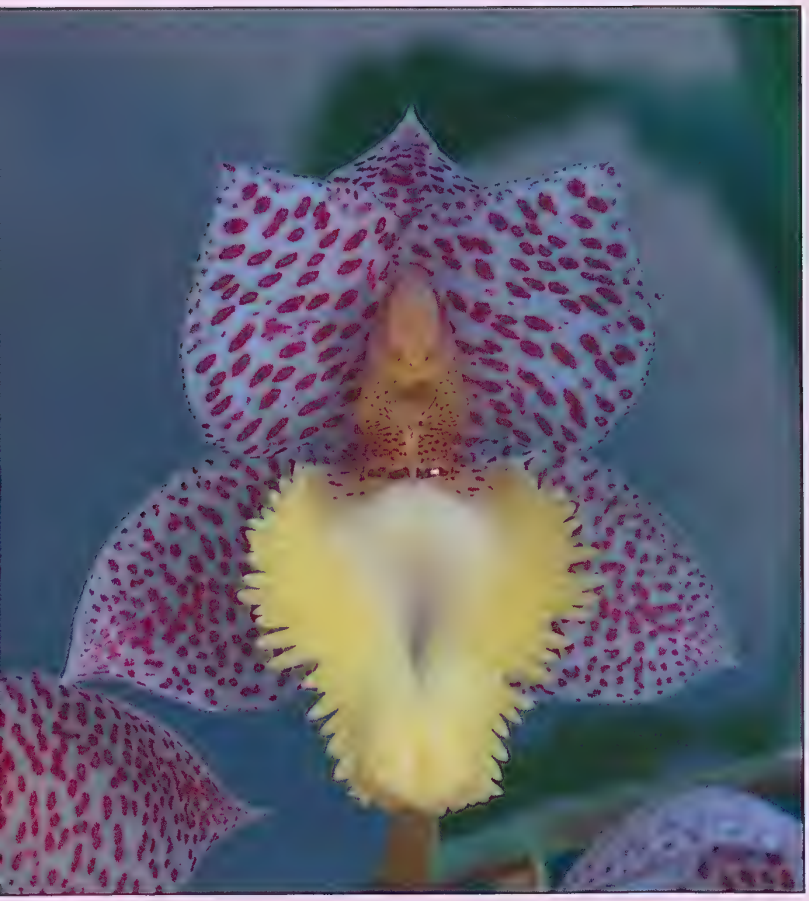


Left:
***Catasetum* Orchidglade**
'Davie Ranches'
AM/AOS

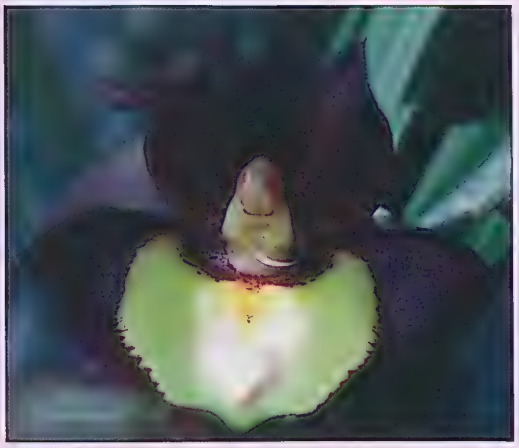
Below:
***Catasetum* Orchidglade**
'Leucadia'



Above: *Catasetum* Susan Fuchs 'Burgundy Chips' FCC/AOS

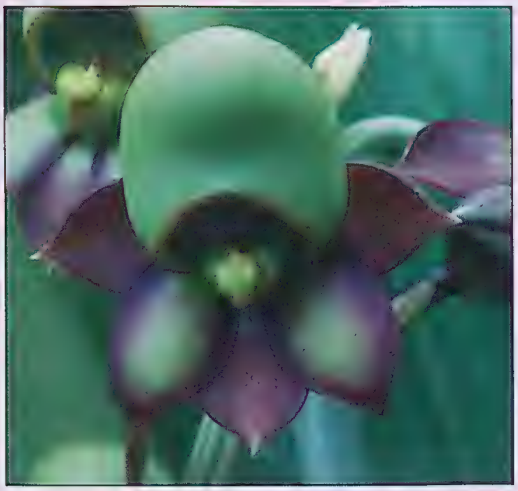


Left:
***Catasetum* Dentigrianum**



Above:
***Catasetum* Donna Wise**
'#20'

Below:
***Catasetum* Donna Wise**
'Amber' AM/AOS - female flowers

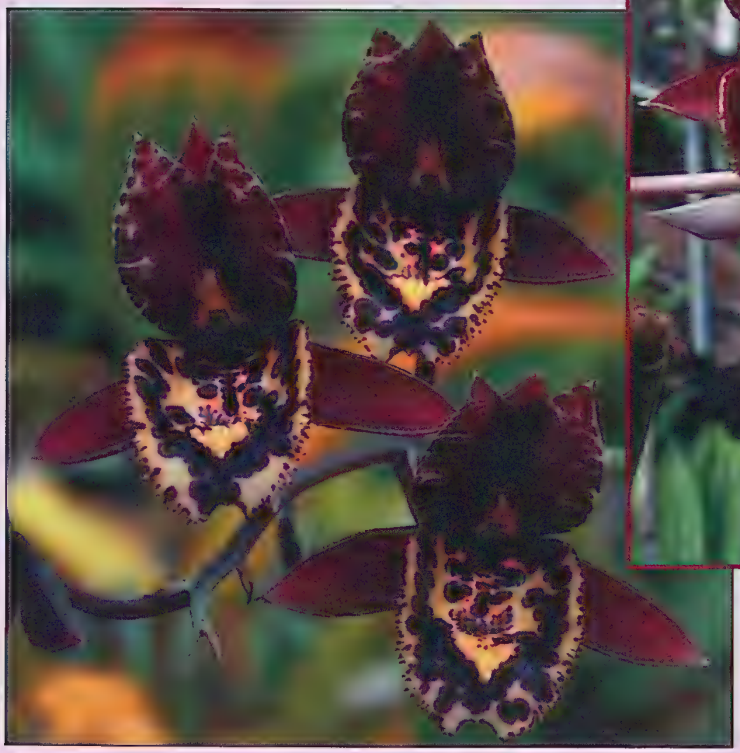


Below:
Catasetum
Donna Wise
'Susan'
AM/AOS

Above: *Catasetum* Penang 'Sweetheart'

Above: *Catasetum* Portagee Star 'Brian Lawson's Sunrise' HCC/AOS

Right:
Catasetum
Karen Armstrong
'Dark Darling'



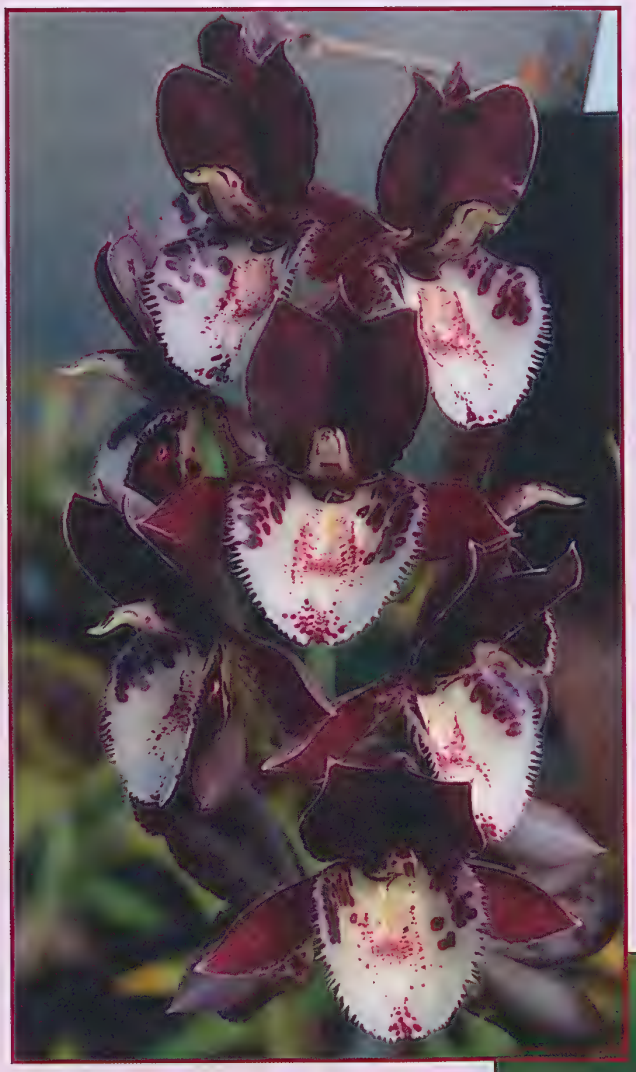
Left:
Catasetum
Karen Armstrong
'SVO'

Above:
***Catasetum* Chuck Taylor 'SVO'**

Below:
***Catasetum* Chuck Taylor 'WOW'**

Above:
***Catasetum* Chuck Taylor 'Select'**

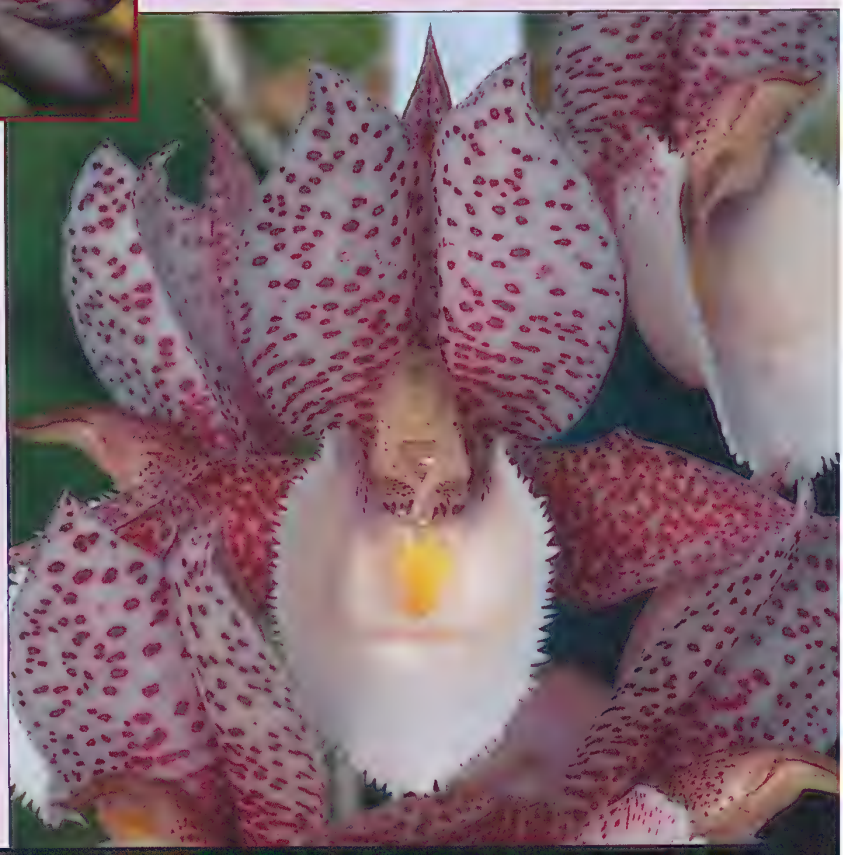
Below:
***Catasetum* Chuck Taylor 'SVO Sun Spot'** AM/AOS



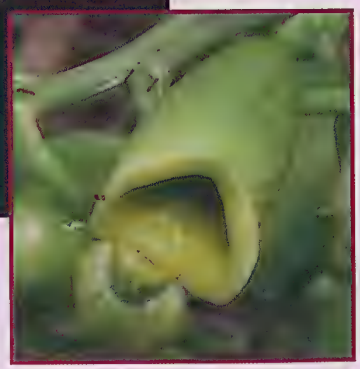
Above left:
Catasetum
Melana Davison
'Bomb Shell'

Above right:
***Catasetum* Melana Davison**
'Fox Tail'

Right:
Catasetum
Melana Davison
'SVO' AM/AOS



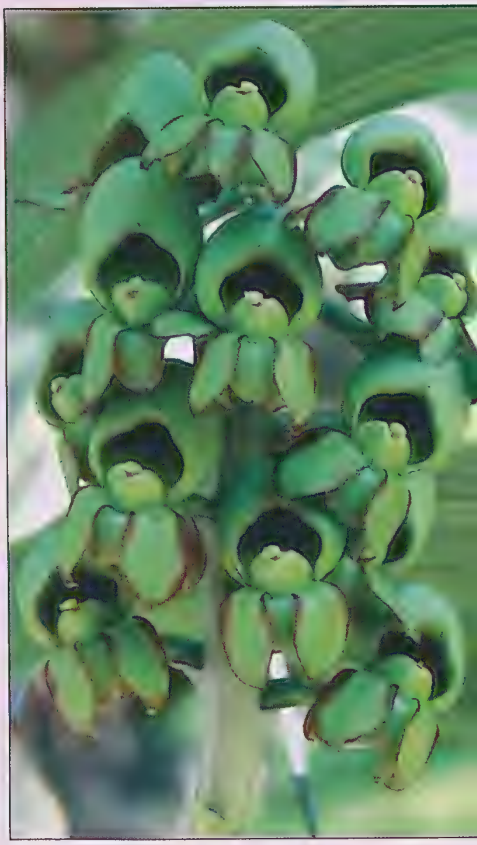
Above:
***Catasetum* Alexa 'Arnie'** AM/AOS
(photo: Arnold Gum)



Right:
Catasetum
(Female flower)

Above:
***Catasetum* Alexa 'Good One'**

Below:
Catasetum
(Female flowers)



Paphiopedilum micranthum 'Puffclere' HCC/OSCOV, grown by Bill and Jan Miles of Orchid Species Plus at Kingston was the Victorian Orchid of the Year for 2014. It was also Victorian Species Paphiopedilum Orchid of the Year and the Victorian Seedling of the Year – The Harold and Florence Coker Award.
Photo: Jan Miles

Victorian Orchids *of the Year 2014*

by Meryl Early

The Orchid Societies Council of Victoria (OSCOV) has conducted its 22nd Annual Victorian Orchids of the Year competition. Digital pictures of all orchids that have received OSCOV awards in the current year are considered, together with any others submitted by Victorian growers. Success in this competition relies not only on growing an orchid of award quality but also on taking photographs of a similar standard. As a consequence, those orchids with the highest awards do not necessarily win this competition.

In 2014, a total of 58 OSCOV awards were granted (33 Quality Awards, 6 Awards of Distinction, 12 Cultural Certificates, 5 Certificates of Botanical Merit/Recognition). Eight growers also entered images of plants that had done well at their meetings or shows. The OSCOV Judging Panel met in February 2015, first to select the winners in the various categories, and then to decide the overall winner. The results of the Judges' adjudications are as follows:

The **Victorian Orchid of the Year for 2014** (sponsored by OSCOV) was ***Paphiopedilum micranthum* 'Puffclere'** HCC/OSCOV, grown by Bill and Jan Miles of Orchid Species Plus at Kingston. This well presented orchid won **Victorian Species Paphiopedilum the Year** (sponsored by the Stawell Orchid Society), as well as the **Victorian Seedling of the Year - The Harold and Florence Coker Award** sponsored by Frances and Julian Coker.

As the 'cultured' orchid section has been keenly contested, it was decided to separate these into Best Cultured Hybrid and the Best Cultured Species. The **Victorian Best Cultured Hybrid of the Year** (sponsored by Berwick Orchid Society) went to Michael Coker of Heidelberg for specimen plant ***Dendrobium* Mousmee 'McClintock'** HCC/OSCOV, CC/OSCOV.

◀ Michael Coker of Heidelberg won **The Best Cultured Hybrid of the Year** with ***Dendrobium* Mousmee 'McClintock'** HCC/OSCOV, CC/OSCOV. *Photo: Michael Coker*

Dendrobium **Mousmee 'McClintock'** HCC/OSCOV. *Photo: Michael Coker*

Matthew Dawkins of Frankston won the **Victorian Best Cultured Species of the Year** (sponsored by the Maroondah Orchid Society) will also receive the OSCOV - sponsored **Gunter Haar Memorial Trophy** (a large framed photograph of their orchid and an OSCOV silver medallion) for winning the **Victorian Best Cultural Orchid of the Year** with their spectacular specimen plant of ***Dendrobium tetragonum* var. *melaleucaphilum* 'Dawkins'** HCC/OSCOV, CC/OSCOV. A total of 12 Cultural Certificates were granted during 2014.

***Sarcochilus* Erin 'Botanic Ridge'** grown by Glennice Simmons of Mt Eliza won **Victorian Australian Native Orchid Hybrid of the Year** (sponsored by the Mornington Peninsula Orchid Society). This is one of the rare cases where the winner of a particular category had not received an OSCOV award this year, although the judges were unaware of this fact during judging (at the time of judging the nature of any awards and all cultivar names are withheld, so that the judges' decisions are based solely on the merit of the entries as shown by their photographs).

The **Gunter Haar Award** for the **Victorian Best Cultural Award of the Year** went to Matthew Dawkins who was delighted to win the **Victorian Best Cultured Species of the Year** with their specimen plant of ***Dendrobium tetragonum* var. *melaleucaphilum* 'Dawkins'** HCC - CC/OSCOV. This plant also won the **Victorian Australian Native Species of the Year**. *Photo: Glennice Simmons*

▲ The **Victorian Australian Native Hybrid of the Year** was the plant of ***Sarcochilus* Erin 'Botanic Ridge'** grown by Glennice Simmons of Mt Eliza. *Photo: Glennice Simmons*

Victorian Paphiopedilum Hybrid of the Year, grown by Andrew Francis and John Martin of Castle Creek Orchids, was ***Paphiopedilum*** **Vintage Passport 'Castle Creek'** AM/OSCOV. *Photo: John Martin*

Victorian Paphiopedilum Hybrid of the Year (sponsored by the Ballarat Orchid Society) was ***Paphiopedilum*** **Village Passport 'Castle Creek'** AM/OSCOV, grown by Andrew Francis and John Martin of Castle Creek Orchids at Merrigum.

Terry Poulton of Narre Warren won the **Victorian Cymbidium of the Year** (sponsored by the Cymbidium Orchid Society of Victoria) with ***Cymbidium*** **Laramie Lady 'Tee Pee'** HCC/OSCOV.

Victorian Cymbidium of the Year was won by Terry Poulton of Narre Warren with ***Cymbidium*** **Laramie Lady 'Tee Pee'** HCC/OSCOV. *Photo: Terry Poulton*

Marita Anderson and Chris Waterman of Jeeralang Junction (eastern Victoria) won **Victorian Masdevallia of the Year** with ***Masdevallia* Carnival 'Jester'** AM/OSCOV. *Photo: Marita Anderson*

Marita Anderson and Chris Waterman of Jeeralang Junction with their plant ***Masdevallia* Carnival 'Jester'** AM/OSCOV won the **Victorian Masdevallia of the Year** (sponsored by Warrnambool and District Orchid Society). This plant had gained a higher award and thus eligible to be entered for this section.

The **Victorian Laeliinea of the Year** (sponsored by the Mid-Murray Orchid Club) was ***Cattleya* Dal's Magic 'Andrew'** HCC/OSCOV owned by Andrew Francis and John Martin of Castle Creek Orchids. They also won **Victorian Award of Quality of the Year** (sponsored by the Ringwood Orchid Society) with ***Paphiopedilum* Black Spider** AQ/OSCOV.

Marilyn and Barry Larkin of Cranbourne won the **Victorian Oncidiinae Hybrid of the Year** category (sponsored by the Bendigo Orchid Club), this time with (syn. *Gomesa*) ***Oncidium* Dark Sun 'St Austell'** HCC/OSCOV.

The **Victorian Any Other Species of the Year – The Gerald McCraith Award** (sponsored by the Orchid Species Society of Victoria) was awarded to ***Habenaria medusa* 'Gem'** HCC/OSCOV, CBM/OSCOV owned by Michael Coker of Heidelberg. He also won the **Victorian Any Other Hybrid of the Year** with ***Bulbophyllum* Elizabeth Ann 'Buckleberry'** HCC/OSCOV.

The **Victorian Award of Distinction of the Year** (sponsored by Werribee Orchid Club) was awarded to ***Cymbidium* Justa Kiwi Girl 'NEMOS'** owned by Frances and Julian Coker of Warrandyte.

▲ The **Victorian Laeliinae of the Year** was ***Cattleya* Dal's Magic 'Andrew'** HCC/OSCOV shown by Andrew Francis and John Martin of Castle Creek Orchids at Merrigum. *Photo: Ross Pascoe*

John Martin and Andrew Francis of Castle Creek Orchids also won the **Victorian Award of Quality of the Year** category with ***Paphiopedilum*** **Black Spider** AQ/OSCOV. *Photo: John Martin*

Although professional growers won only five awards in 2014, namely, Victorian Species Paphiopedilum of the Year and Victorian Seedling of the Year (Orchid Species Plus owned the Victorian Orchid of the Year); the Victorian Laeliinae Hybrid of the Year, The Victorian Paphiopedilum Hybrid and the Victorian Award of Quality of the Year (Castle Creek Orchids); and the Award of Distinction of the Year (Atlantis Orchids). Country growers won the categories for Victorian Masdevallia of the Year. Amateur growers from the Greater Melbourne area did better this year than in the past, winning the categories for the Victorian Australian Native Species of the Year and the Victorian Best Culture of the Year (and the Victorian Best Cultured Species); Victorian Oncidiinae Hybrid of the Year, Victorian Paphiopedilum Species of the Year, Victorian Cymbidium of the Year, the Victorian Best Cultured Species of the Year, the Victorian Any Other Species of the Year, and the Victorian Any Other Hybrid of the Year.

All trophies will be presented at the dinner to be held in conjunction with the OSCOV's 'Melbourne Orchid Spectacular' Show at the KCC Park, 655 Westernport Highway (Skye) on 28th to 30th August 2015. The winners of all other categories will receive smaller framed photographic prints of their orchids and OSCOV medallions at this OSCOV Dinner on Saturday 29th August 2015.

Considerably more awards were granted in 2014, but many growers did not complete their award 'picture' requirements before the 31st January 2015 cut-off date. I thank the OSCOV Awards Secretary Stephen Early, for providing the photographs used in this article.

Meryl Early
Carrum Downs, Victoria
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▲ ***Bulbophyllum*** **Elizabeth Ann 'Buckleberry'**, grown by Michael Coker of Heidelberg was **Victorian Any Other Hybrid of the Year.** *Photo: Michael Coker*

▲ The **Victorian Oncidiinae Hybrid of the Year** was won by Marilyn and Barry Larkin of Cranbourne with (syn. *Gomesa*) ***Oncidium*** **Dark Sun 'St Austel'** HCC/OSCOV. *Photo: Barry Larkin*

▶ The **Victorian any other Species of the Year – the Gerald McCraith Award** was won by Michael Coker of Heidelberg with ***Habenaria medusa*** **'Gem'** HCC/OSCOV, CBM/OSCOV. *Photo: Michael Coker*

New Species in the *Pterostylis nana* R.Br. complex (Orchidaceae) from Western Australia - 4

by David L. Jones and Christopher J. French

Abstract

Pterostylis parva, Pterostylis platypetala, Pterostylis scitula and *Pterostylis voigtii,* four taxa within the complex of species that make up the *Pterostylis nana* R.Br. group, are described here as new. Notes are included on their distribution, ecology and conservation status; their distinguishing features are compared with those of allied taxa.

Key Words

Orchidaceae, *Pterostylis nana, Pterostylis parva, Pterostylis platypetala, Pterostylis scitula, Pterostylis voigtii, Pterostylis timothyi,* new species, Western Australia, Australian flora.

Introduction

This paper, the fourth in a series, describes four new species of the *Pterostylis nana* complex in Western Australia. Nine species have been described previously (Jones & French-1&2, 2014, 3, 2014-2015). *Pterostylis nana* R.Br. *sensu stricto* was characterised in the first paper of this series (Jones & French, 2014-1).

Materials and Methods

Descriptions of the new taxa were made from fresh specimens. Unless otherwise indicated, all types of *Pterostylis* relevant to this study (or photographs thereof), and collections cited, have been seen by us.

Characterisation of *Pterostylis nana* R.Br.

Pterostylis nana R.Br. *sensu stricto* was characterised in the first paper of this series (Jones & French, 2014). A detailed line drawing of *Pterostylis nana sens. strict.* is included in Jones & Clements 2002, and a photograph in Jones *et al.* 1999.

Taxonomy

1. *Pterostylis parva* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Pterostylis nana* R.Br. but differing by its shorter habit, small bluish-green leaves, smaller flowers which become reddish as they age, thicker free points on the lateral sepals and a broadly oblong labellum with scabrous to hirsute margins.

Type: Western Australia. Roe District. Truslove Nature Reserve, 2.9 km north along Swan Lagoon Road., 16 July 1995, *C.French (DLJones 14037)* (holo CANB 663789).

Illustrations: Brown, Dundas, Dixon & Hopper (2008), Page 275 as *Pterostylis* sp. "fawn". Hoffmann & Brown (1998), Page 351 as *Pterostylis* sp. aff. *nana* (fawn snail orchid). Brown, Dixon, French & Brockman (2013), Page 367 as *Pterostylis* sp. "small stature". It has the phrase name *Pterostylis* sp. small stature (W. Jackson BJ303) in FloraBase, the native plant database maintained by the Western Australian Herbarium, Department of Parks and Wildlife, Government of Western Australia.

Description: *Flowering plants* 5-12 cm tall. *Rosette* basal; leaves 5-9; lamina ovate, 3-9 mm x 2-6 mm, dark green, paler beneath, subacute to acuminate, entire; petioles 3-9 mm long, narrowly winged. *Scape* 3-10 cm tall, very slender, smooth. *Stem leaves* 1-2, ovate-lanceolate, 3-6 mm x 2-2.5 mm, acuminate, fairly closely sheathing. *Ovary* 3-5 mm long, green, smooth. *Flower* solitary, 10-13 mm long, translucent white with bright green stripes in proximal half, coalescent and somewhat brownish in distal half; galea gibbous to inflated at the base then obliquely erect, curving forwards in the distal third, apex slightly decurved, dorsal sepal about as long as the petals. *Dorsal sepal* 14-16 mm x 8-9 mm, inflated at the base then tapered, apex acuminate, striped in the proximal half, green in the distal half. *Lateral sepals* erect, tightly embracing the galea; sinus hardly protruding when viewed from the side, upper margins sloping gently to shallow central notch which is flanked by an area of dark green tissue; central lobe c. 1 mm long. obtusely deltoid, folded internally; conjoined part 5-6 mm x 4-4.5 mm, narrowed to c. 1.5 mm across at the base, the upper margins suddenly tapered to the free points; free points 10-17 mm long, filiform, lower margins inrolled, erect or recurved, held high above the galea. *Petals* 10-12 mm x c. 3 mm, obliquely lanceolate, falcate, broadly dilated near the apex, anterior margin flared, undulate, dark green with two narrow, white central stripes, distal quarter green to brownish; flange c. 1.5 mm across, broadly deltate, obtuse, with a few short, white cilia on the margin. *Labellum* erect, curved forwards abruptly near the apex, white with thin green stripes in the proximal half, green or brownish near the apex; lamina c. 4 mm x 2 mm, linear-oblong to oblong-elliptical, a shallow groove on either side of the central callus, apex broadly obtuse, a few short white cilia on the proximal margins; callus c. 0.4 mm across, ridged, expanding to c. 0.7 mm across near the apex; basal appendage c. 2 mm long, linear-tapered, deflexed, curved up near the apex with 3 sparsely ciliate lobes. *Column* 8-9 mm long, angled away from the ovary at about 50° at the base then obliquely erect, light green. *Column wings* c. 3 mm long; basal lobe c. 1 mm x 0.6 mm, at an angle of about 70°, anterior margin curved, obtuse, inner margin and apex adorned with short, white cilia; mid-section c. 1 mm long, green; apical lobe c. 0.4 mm long, linear, obtuse. *Stigma* c. 3 mm x 1 mm, linear-obovate, raised, situated centrally. *Anther* c. 0.8 mm long, obtuse. *Pollinia* c. 1 mm long, linear-clavate, falcate, mealy, yellow. *Capsules* not seen.

Distribution and ecology: Endemic in South-western Western Australia where it is found from east of Esperance to the Stirling Ranges and inland to near Hyden. It grows in dense shrubby myrtaceous thickets in shallow skeletal clay loam, lateritic loam and sometimes in moss pads on inland granite. Disjunct populations occur near the Eyre Bird Observatory growing in sand on limestone escarpments. Flowering: June – August.

Pterostylis parva
- Stirling Ranges,
August 1997

Recognition: Characterised by its generally small stature, small narrow bluish-green rosette leaves with prominent veins, small flowers which gain distinct reddish tones as they age, thickish free points on the lateral sepals and a broadly oblong labellum with scabrous to hirsute margins. *Pterostylis nana* is taller growing with thicker flower stems, larger bright green leaves and larger flowers which do not turn reddish as they age, an ovate-oblong labellum and filiform free points on the lateral sepals.

Similar species: This new species has similarly shaped small flowers to *Pterostylis timothyi* but that species grows taller, has bright green leaves and an ovate labellum with smooth margins. It is also similar to *Pterostylis voigtii* (also described as new in this paper) which has generally shorter plants, an elliptical labellum with smooth margins and is usually confined to moss pockets on near-coastal granite rocks and granitic headlands.

Notes: The distribution of *Pterostylis parva* overlaps that of *Pterostylis timothyi* but the two species are seldom found growing together. In lower rainfall areas, *Pterostylis parva* sometimes grows with *Pterostylis* sp. inland (A.C. Beauglehole 11880), FloraBase, which is taller with light green leaves that lack prominent veins and has a hairy flower stem. At the western end of its range, *Pterostylis parva* overlaps several other taxa within the *Pterostylis nana* R.Br. group, but these taxa are all much taller with larger flowers, larger basal rosette leaves and lack the dark green, prominently veined, pointed rosette leaves. It shares similar habitat with the dimorphic species *Pterostylis dilatata* which can be recognised by the flowering plants lacking a basal rosette.

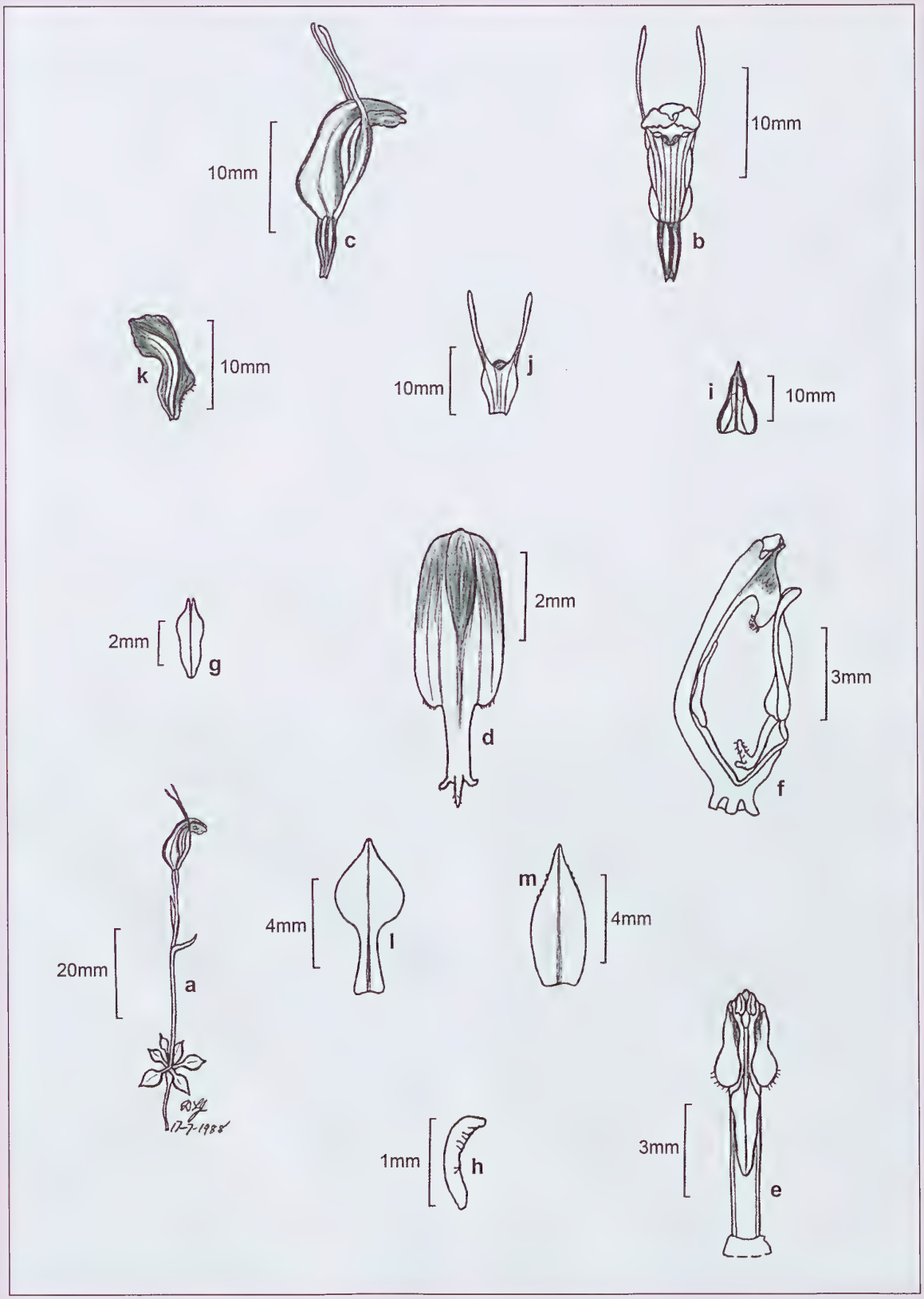
Conservation status: Widespread and conserved in national parks and nature reserves. Suggest 2R according to the criteria of Leigh, Briggs & Hartley (1981).

Etymology: From the Latin *parvus*, small, little, puny, in reference to the very short stature, small flowers and leaves.

Other Specimens: WESTERN AUSTRALIA. Mt Trio, Stirling Ranges, 15 Sept. 1994, *N.Evans (D.L.Jones 13380)* (CANB); corner Thomas Road, and Highway 1, 16 July 1995, *C.J.French (D.L.Jones 14040)* (CANB); 2 km N of Salmon Gums, 16 July 1995, *C.J.French (D.L.Jones 14035)* (CANB); Truslove Nature Reserve, 16 July 1995, *C.J.French (D.L.Jones 14037)* (CANB); Coolinup Nature Reserve, 17 July 1995, *C.J.French (D.L.Jones 14042)* (CANB); Orchid Hill, 20 Aug. 1997, *C.J.French 667* (CANB); Kau Rock Road, 22 Aug. 1997, *C.J.French 703* (CANB); Scenic Lookout, Stirling Range Drive, 24 Aug. 1997, *C.J.French 725* (CANB); Kau Rock Road, 23 August 1997, *G.Brockman 275* (PERTH). Mount Newmont Track, 16 km W of Parmango Road, 11 Aug. 2000, *G.Brockman 659* (PERTH); Mount Newmont, 90 km SW of Balladonia, 12 Aug. 2000, *G.Brockman 624* (PERTH); Eld Road 100 m NE of Burdett Road Junction, NW of Condingup, 14 Aug. 2000, *G.Brockman 635* (PERTH); West River crossing South Coast Highway, W of Ravensthorpe, 28 Aug. 2006, *G.Brockman 1783* (PERTH); Box Hill, Loc 7045, Porongorup, 17 Sept. 2000, *A.Burchell 474* (PERTH); 1.3 km SE on track which is 6.2 km SW along the old telegraph line from the junction with the main track running E of the Eyre Bird Observatory, 15 Aug. 1989, *A.P.Brown 965* (PERTH); Mondurup Peak, Stirling Range, 21 Aug. 1995, *S.Barrett 573* (PERTH); 500 m along Bluff Knoll walk track from carpark in Stirling Range National Park, 85 km N Albany, 10 September 1987, *B.Cockman 11* (PERTH); Cowalellup Rock, 26 Aug. 1973, *K.R.Newbey 3711* (PERTH); Granite outcrop corner of Cape Le Grande and Merrivale Roads, E of Esperance, 30 Aug. 1997, *G.Brockman 249* (PERTH).

Pterostylis parva **- Salmon Gums, July 1995**

Pterostylis parva **- Truslove Nature Reserve, July 1995**



***Pterostylis parva*, near Salmon Gums, WA**

a. flowering plant; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. lateral sepals; k. petal; l. leaf; m. bract. © D.L.Jones 17 July 1988

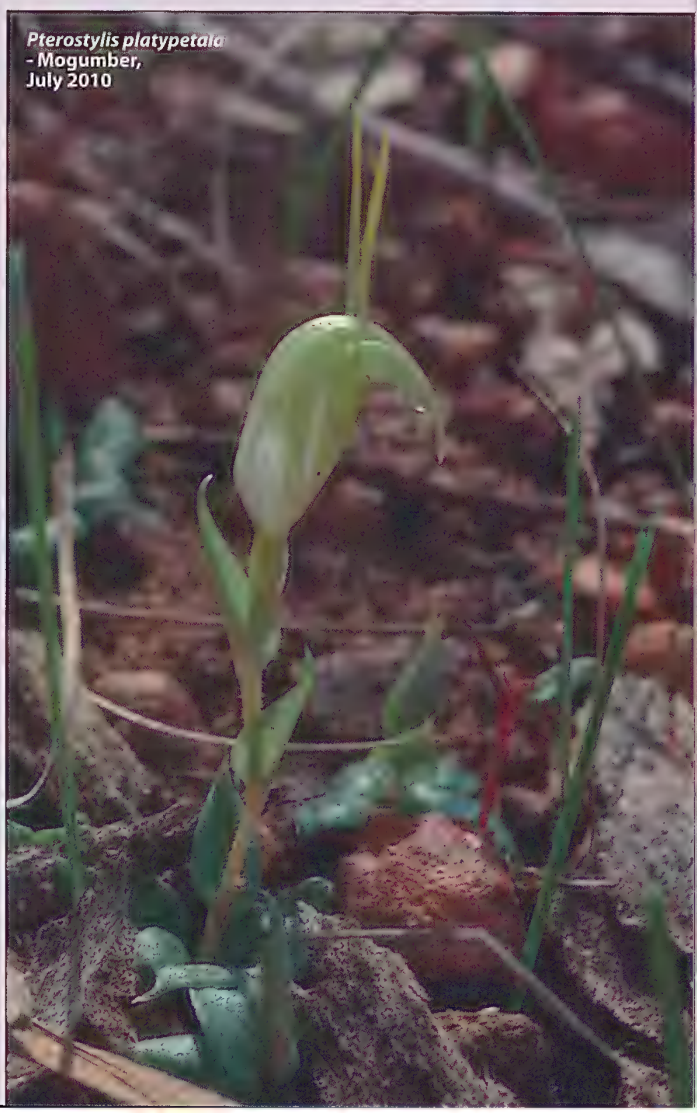
2. *Pterostylis platypetala* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Pterostylis nana* R.Br. but differing by its thicker strongly scabrous scape and ovary, longer flowers, dorsal sepal with a long-acuminate apex, thicker free points on the lateral sepals, petals with a broadly dilated margin and an oblong labellum with smooth margins.

Type: Western Australia. Qualen Road, 6.5 km E of Gunapin Ridge Road, 23 Aug. 1998, *C.J.French 1259* (holo CANB 625013).

Illustrations: Brown, Dundas, Dixon & Hopper (2008), page 271 as *Pterostylis* sp. "broad petals". Hoffmann & Brown (1998), page 348 as *Pterostylis* aff. nana (Broad-petaled Snail Orchid). Hoffmann & Brown (2011), page 410 as *Pterostylis* sp. "broad petals". Brown, Dixon, French & Brockman (2013), page 354 as *Pterostylis* sp. "broad petals". It has the phrase name *Pterostylis* sp. broad petals (S.D. Hopper 4429) in FloraBase.

Description: *Flowering plants* 4.5-10 cm tall. *Rosette* basal, leaves 2-5, mid green, dull; lamina ovate to sagittate, 4-10 mm long, 3-10 mm wide, margins with a line of transparent siliceous cells sometimes acicular, apex acuminate; petioles 2-5 mm long, slender, narrowly winged. *Scape* 3.5-8 cm tall, c. 1 mm wide, tuberculate to ciliate. *Stem leaves* 2 - 4, ovate-lanceolate, 7-14 mm long, 3-6 mm wide, acuminate, spreading, sheathing at the base. *Ovary* 3-5 mm long, green to light brown, setulose. *Flower* solitary, erect or slightly leaning, 12-14 mm long, 3-4 mm wide, white with green and light brown markings, the colours coalescent and usually light red brown towards the apex of the galea; galea gibbous at the base then erect, bending forwards suddenly in the distal third, apex nearly horizontal or shallowly decurved; dorsal sepal of similar length to the petals. *Dorsal sepal* ovate-lanceolate, 18-22 mm long, 6-8 mm wide, inflated at the base then tapered, striped, apex long-acuminate, darker. *Lateral sepals* erect, tightly embracing the galea; conjoined part 6-9 mm long, 4-5.5 mm wide, narrowed to c. 2 mm wide at the base, nearly flat or slightly bulged when viewed from the side; upper margins sloping gently to a raised dark green central area which is notched, tapered suddenly into the free points; central lobe c. 1 mm long, dark green, folded internally, obtuse; free points held high above the galea 12-16 mm long, linear-clavate, erect, recurved or incurved, divergent. *Petals* strongly falcate, oblong, 12-15 mm long, 3.5-4 mm wide, distally dilated, forming a distinct hood, anterior margins slightly irregular, subacute to obtuse, green with a narrow white central patch; flange broadly obtuse, c. 2 mm wide, the proximal curved margin glabrous. *Labellum* erect, straight, not visible through the sinus in any position; basal claw ligulate, c. 1.5-2 mm long, c. 0.8 mm wide; lamina oblong-elliptic, 4.5-5 mm long, c. 1.8-2 mm wide, white with green to brown markings, margins glabrous, some crowded short white trichomes flanking the stalk of the basal appendage; apex obtusely apiculate; callus 0.2-0.3 mm wide at the base, expanding to c. 0.6 mm at the apex, raised in a rounded central ridge; basal appendage c. 1.6 mm long, c. 0.8 mm wide at the base, linear, deflexed, incurved near the apex, the margins entire, apex trifid, hairy. *Column* 6.5-7.5 mm long, angled away from the ovary at about 45° at the base, then obliquely erect, white and greenish-brown. *Column wings* 2.7-3 mm long; basal lobe c. 1.3 mm long, c. 0.8 mm wide, white, at an angle of about 60°, anterior margin curved, apex obtuse, with short white cilia; mid section c. 1.2 mm long, brownish; apical lobe 0.4-0.6 mm long, linear, obtuse. *Stigma* oblong, 4-4.4 mm long, 0.8-1 mm wide, raised, fleshy. *Anther* c. 1 mm long, obtuse. *Pollinia* linear, c. 1.4 mm long, falcate, yellow, mealy. *Capsules* not seen.

Pterostylis platypetala **- colony of plants, Mogumber, July 2010**



Pterostylis platypetala **- Mogumber, July 2010**

Pterostylis platypetala
- Mullering Brook,
June 1993

Distribution and ecology: From south of Kalbarri to the Darling Range south-east of Perth. Grows in low heath in winter wet flats south of Kalbarri; under low shrubs on lateritic mesas and stony flats around Northampton and Geraldton; under York Gum in brown clay near Perth and in White Gum woodland and along creeklines in stony brown clay. Flowers late May-mid August.

Pterostylis platypetala - Moora, August 2007 (photo: G.B. Brockman)

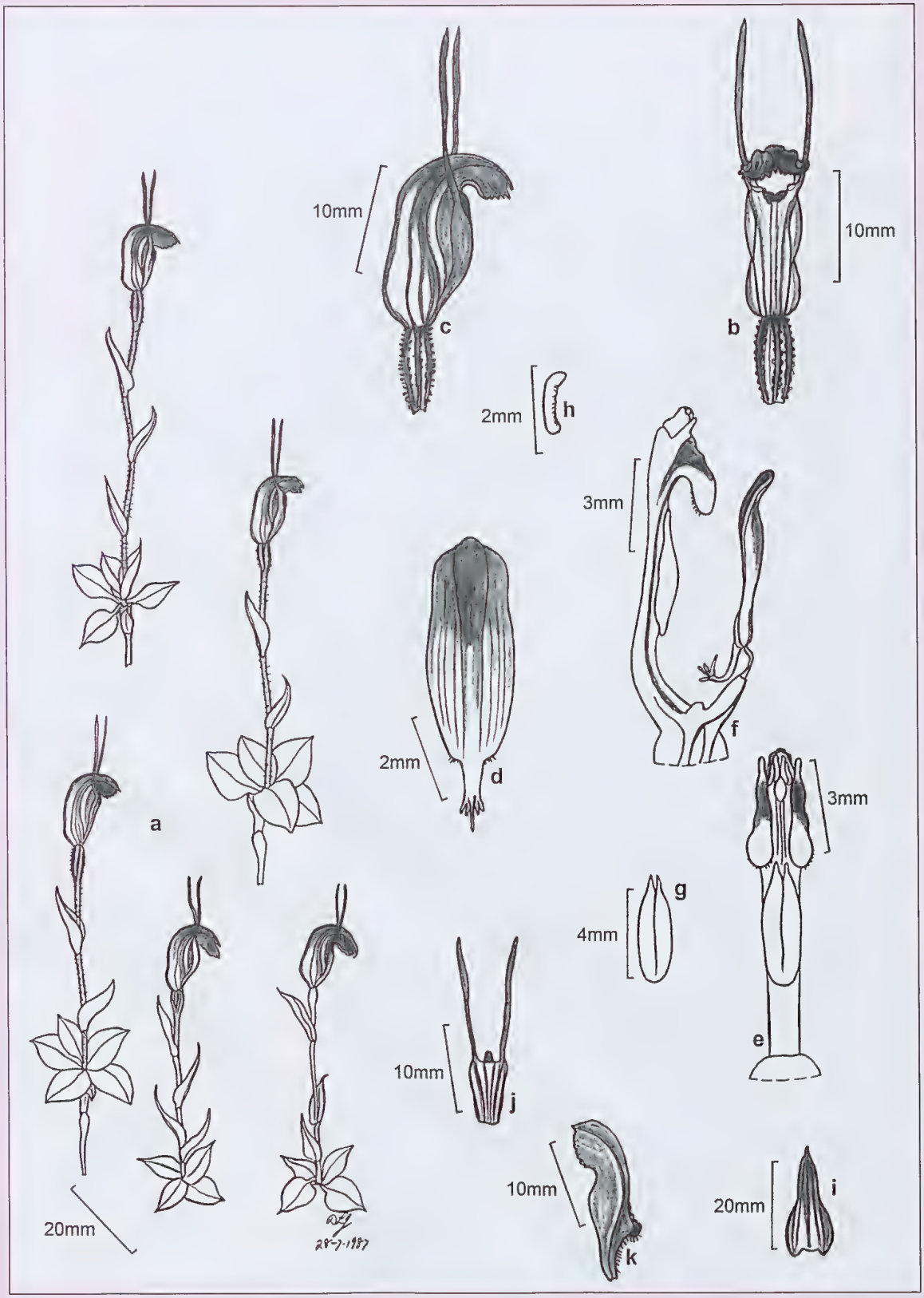
Recognition: Characterised by relatively large rosette leaves, scabrous scape and ovary, relatively large flowers, thick free points on the lateral sepals, petals with broadly dilated anterior margins and an oblong labellum with smooth margins.

Notes: The new species often grows sympatrically with *Pterostylis scitula* (also described as new in this paper) which can be recognised by its taller plants, smooth flower stem and ovary, longer lateral sepals, narrower petals and an elliptical-obovate labellum with shortly ciliate margins. *Pterostylis nana* itself has smaller rosette leaves, smooth scape and ovary, filiform free points on the lateral sepals, narrower petals and an ovate-oblong labellum.

Conservation status: Widespread and conserved.

Etymology: From the Greek *platy-*, used in composition to mean broad, and *–petala*, petal, in reference to the broadly dilated petal margins.

Other specimens: WESTERN AUSTRALIA. Yerina Springs Road ca 1 km S Binnu Road West, 18 June 1996, *A.P.Brown 2000* (PERTH); Mullering Brook, Brand Highway, Cataby, 22 June 2003, *J.E.Wajon 666* (PERTH); On old road to W of existing road, Moora Bindoon Road, 750 m N of Moore River Crossing, 9 Aug. 2004, *G.Brockman 1182* (PERTH); Yerina Springs Road, stony hillside on W side of road. Farmland on S side of reserve, NW of Northampton, 29 Aug. 2004, *G.Brockman 1283* (PERTH); Boonanarring Brook, Boonanarring Nature Reserve, Gingin, 20 Aug. 2001, *F.Hort 1393* (PERTH); Yandin Nature Reserve, E of Brand Highway, Cataby, 8 July 1997, *G.Brockman 153* (PERTH); Track E of Gunapin Ridge, West Dale, 26 July 1997, *G.Brockman 186* (PERTH); Hi Vallee property (D. & J.Williams) Warradarge, at base of E breakaway on main valley, 9 July 1999, *M.Hislop 1326* (PERTH); 12.1 km N of Moora on the Midlands Road, 18 July 1985, *S.D.Hopper 4420* (PERTH); 7 Mile Well Nature Reserve, S of New Norcia on Great Northern Highway, 9 Aug. 2004, *G.Brockman 1199* (PERTH); Bindoon Moora Road, 200 m S Moore River, Mogumber, 9 Aug. 2004, *G.Brockman 1181* (PERTH); Qualen Road 38 km SW of York, 14 Aug. 2004, *G.Brockman 1213* (PERTH); Mogumber on Moora Bindoon Road, 300 m S of Moore River Bridge, W side, 10 July 2005, *G.Brockman 1640* (PERTH); Mullering Brook crossing Brand Highway, 14.3 km N of Olivers Bridge, Cataby, 10 July 2005, *G.Brockman 1636* (PERTH).



***Pterostylis platypetala*, south of Moora, WA**
a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. synsepalum; k. petal. © D.L.Jones 28 July 1987

3. *Pterostylis scitula* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Pterostylis nana* R.Br. but differing by its larger leaves often with undulate-crispate margins, thickish and thinly-clubbed free points on the lateral sepals and an elliptical-obovate labellum with shortly ciliate margins.

Type: Western Australia. Parking Bay, Moora Town limits, road to Walebine, 29 Aug. 1993, *C.J.French (D.L.Jones 11950)* (holo CANB; iso AD, MEL, NSW, PERTH).

Illustrations: Brown, Dixon, French & Brockman (2013), page 358 as *Pterostylis* sp. "elegant snail orchid". It has the phrase name *Pterostylis* sp. elegant snail orchid (G. Brockman GBB 1194) in FloraBase.

Description: *Flowering plants* 7.5-13.5 cm tall. *Rosette* basal; leaves 4-6; lamina ovate to elliptic, 8-20 mm long, 3-12 mm wide, bright green, paler beneath; margins entire or crenulate; apex acute to acuminate; petioles 4-10 mm long, narrowly winged. *Scape* 6-12 cm long, thin, smooth. *Stem leaves* loosely sheathing to spreading, 2-3, ovate-lanceolate, 5-18 mm long, 3-7 mm wide, acute to acuminate. *Ovary* 4-8 mm long, dark green, smooth. *Flower* solitary, 13-16 mm long, translucent white with green stripes, colours coalescent in the distal half. *Galea* gibbous at the base then erect, curving forwards in the distal third; apex suberect, flat or slightly decurved; dorsal sepal slightly shorter than the petals. *Dorsal sepal* ovate-lanceolate, 25-30 mm long, 9-12 mm wide, inflated at the base then tapered, striped in the proximal half, stripes coalescent in the distal half; apex apiculate. *Lateral sepals* erect, tightly embracing the galea; sinus nearly flat near the top when viewed from the side, upper margins sloping gently to a shallow central notch which is flanked by an area of darker green tissue; central lobe folded internally, ovate, c.1.5 mm wide, obtuse, dark green; conjoined part 7-9 mm long, 5-6 mm wide, narrowed to c. 2.5 mm across at the base, the upper margins tapered suddenly into the free points; free points erect, linear-clavate,16-20 mm long, smooth, held high above the galea. *Petals* obliquely oblong, 15-18 mm long, 4.5-5 mm wide, falcate, dilated near the apex, green with a narrow white central stripe, distal third darker; anterior margin flared, undulate; flange deltate, c. 2.5 mm across, obtuse, shortly ciliate. *Labellum* erect, curved forwards suddenly near the apex, white with green or brown stripes in the proximal half, green or brown in the distal half. *Labellum lamina* elliptical-obovate, c. 4 mm long, c. 2 mm wide; margins shortly ciliate; apex obtuse. *Callus* c. 0.4 mm across, ridged, expanding to c. 0.6 mm across near the apex; basal appendage deflexed, linear-tapered, c. 2.2 mm long, sparsely ciliate, curved up at the apex, with 3 main lobes. *Column* 7-8 mm long, angled away from the ovary at about 45° at the base then obliquely erect, light green and white. *Column wings* c. 2.2 mm long; basal lobe c. 0.8 mm long, c. 0.6 mm wide, at an angle of c. 70°; anterior margin curved, obtuse; inner margin and apex adorned with short white cilia; mid-section c. 1.3 mm long, green; apical lobe linear to knobbed, c. 0.5 mm long. *Anther* c. 0.8 mm long, obtuse. *Pollinia* linear, c. 1 mm long, falcate, mealy, yellow. *Stigma* situated towards the base of the column, elliptical, c. 2.8 mm long, c. 1 mm wide, raised. *Capsules* not seen.

Distribution and ecology: Endemic in south-western WA where restricted to a narrow band from just south of Gillingarra to Moora. It grows in tall open forest with a sparse understorey in grey loam, also in winter-wet areas under dense shrubs. Flowering: August and early September.

Pterostylis scitula **- colony of plants, Moora, August 1993**

Pterostylis scitula **- colony of plants, Moora, August 1993**

Recognition: Characterised by relatively large green rosette leaves which often have wavy to crinkled margins, relatively tall thin smooth scape, semi-sheathing to spreading stem leaves, long thinly-clubbed free points on the lateral sepals and a small obovate-elliptic labellum with shortly ciliate margins.

Similar species: *Pterostylis nana* itself has smaller rosette leaves with smooth margins, closely sheathing stem leaves, filiform free points on the lateral sepals and a larger ovate-oblong labellum.

Notes: The new species often grows sympatrically with *Pterostylis platypetala* (also described as new in this paper) which can be recognised by its shorter plants, strongly scabrous flower stem and ovary, shorter lateral sepals and broadly dilated petals which impart an expanded appearance to the upper part of the flower.

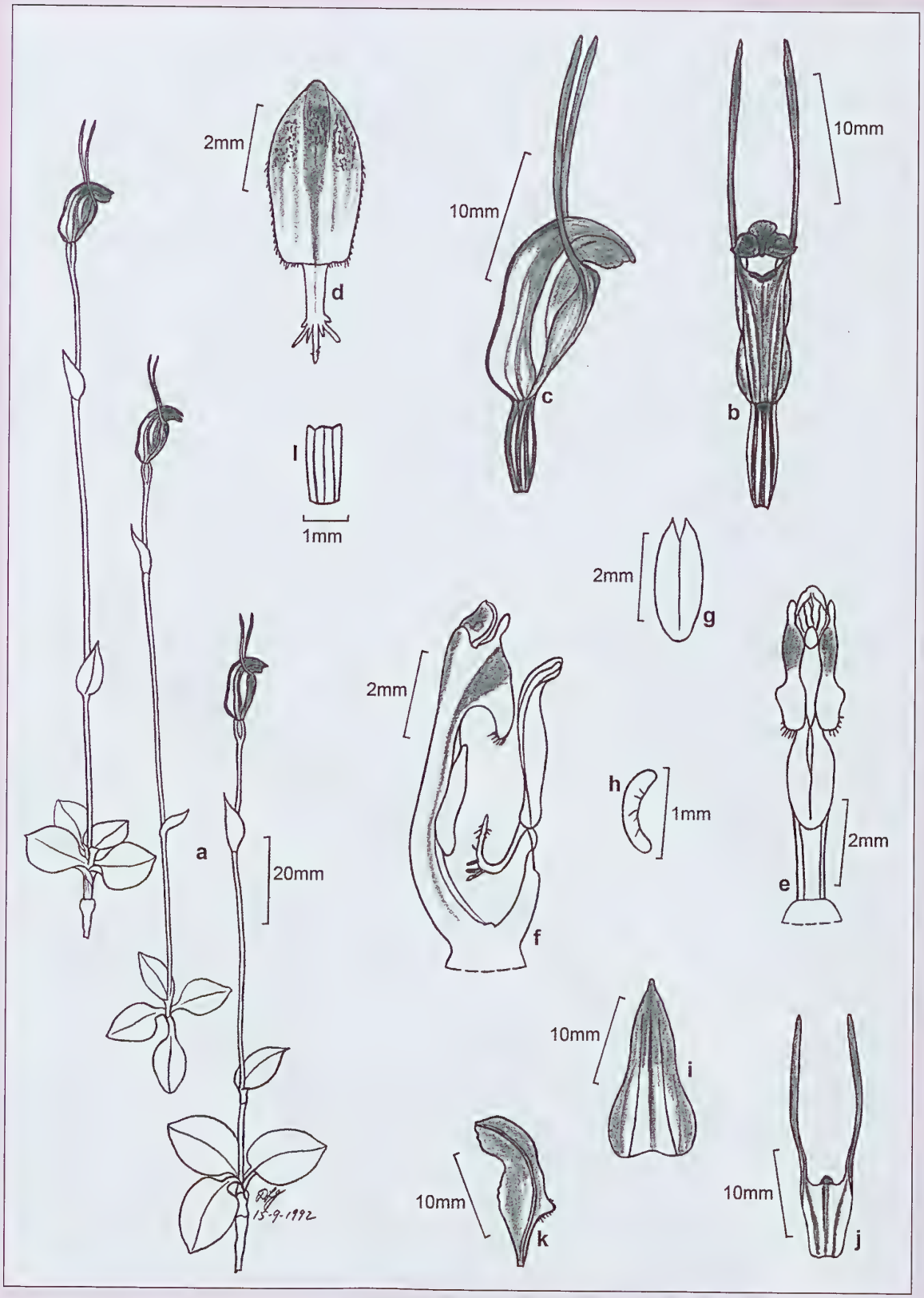
Conservation status: Apparently of restricted distribution but not known to be conserved.

Etymology: The Latin *scitulus*, pretty, elegant, neat, in reference to the neat, elegant flowers.

Other Specimens: WESTERN AUSTRALIA. Midlands Road, on outskirts of Moora, Moora Reserve, 9 Aug. 2004, *G.Brockman 1194* (PERTH); Koónjan Reserve on Moora Bindoon Road, 9 Aug. 2004, *G.Brockman 1191* (PERTH); Boonanarring Brook, Boonanarring Nature Reserve, Gingin, *F.Hort 1458* (PERTH); 1 km N of Gillingarra townsite, 12 Aug. 1997, *G.Brockman 205* (PERTH).

Pterostylis scitula **- Gillingarra, August 2004 *(photo: G.B. Brockman)***

Pterostylis scitula
- Moora,
August 1993



***Pterostylis scitula*, Moora, WA**

a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. synsepalum; k. petal; l. labellum hinge. © D.L.Jones 15 September 1992

4. *Pterostylis voigtii* D.L.Jones & C.J.French, ***sp. nov.*** With affinity to *Pterostylis nana* R.Br. but differing by its short habit, dull green to bluish-green rosette leaves, thicker scape, smaller, plumper flowers that become reddish with age, thicker clubbed free points on the lateral sepals and an elliptical reddish-brown and white labellum with smooth margins.

Type: Western Australia. Eyre District. Mt Belches, Duke of Orleans Bay, 18 July 1995, *C.J.French (D.L.Jones 14048)*, (holo CANB 663800).

Illustrations: Brown, Dundas, Dixon & Hopper (2008), Page 273 as *Pterostylis* sp. "Esperance Granites". Brown, Dixon, French & Brockman (2013), Page 363 as *Pterostylis* sp. "miniature". It has the phrase name *Pterostylis* sp. miniature (J.R. Wheeler 3298) in FloraBase.

Description: *Flowering plants* 2.5-9 cm tall. *Rosette* basal; leaves 4-6; lamina ovate, 5-12 mm long, 3-7 mm wide, dull green to bluish green, paler beneath; margins entire; apex subacute to acute; petioles 2-12 mm long, narrowly winged. *Scape* 1.5-7 cm long, 0.5-1 mm wide, smooth. *Stem leaves* 2, closely sheathing, narrowly ovate, 6-8 mm long, 3-4 mm wide, acuminate. *Ovary* 3-6 mm long, grey-green, smooth. *Flower* solitary, 10-12 mm long, rather plump, translucent white with yellow green stripes in the proximal half, coalescent in the distal half, ageing pinkish to reddish. *Galea* gibbous to inflated at the base then obliquely erect, curving forwards in the distal third; apex slightly decurved; dorsal sepal about as long as the petals. *Dorsal sepal* ovate, 14-16 mm long, 7-8 mm wide, inflated at the base then tapered, striped in the proximal half, coalescent in the distal half; apex acuminate. *Lateral sepals* erect, tightly embracing the galea; sinus protruding in a slight curve when viewed from the side, upper margins sloping gently to a shallow central notch which is flanked by a patch of brownish tissue; central lobe absent, interior surface somewhat papillate; conjoined part 5-6 mm long, 4-4.5 mm wide, narrowed to c. 2 mm across at the base, the upper margins tapered suddenly to the free points; free points linear-clavate, 7-9 mm long, extending above the galea, often curved. *Petals* oblong, 9-13 mm long, 3-3.5 mm wide, falcate, broadly dilated near the apex, yellowish green with a narrow white central stripe, distal third green to pinkish; anterior margins flared, entire; apex obtuse to subacute; flange deltate c. 0.7 mm across, obtuse. *Labellum* erect, curved forwards slightly near the apex, white with sparse green stripes in the proximal half, reddish to red-brown in the distal half. *Labellum lamina* elliptical, c. 4 mm long, c. 2 mm wide, a shallow groove on either side of the central callus; margins smooth except for a few short white cilia at the base; apex broadly obtuse. *Callus* c. 0.3 mm across, ridged, expanding to c. 0.7 mm across near the apex. *Basal appendage* deflexed, linear-tapered, c. 2 mm long, curved up in the distal half, with 3 sparsely ciliate lobes. *Column* 6-7 mm long, angled away from the ovary at about 45° at the base then obliquely erect, light green. *Column wings* c. 2 mm long; basal lobe c. 1 mm long, c. 0.5 mm wide, at an angle of about 70°; anterior margins curved, obtuse, inner margins and apex adorned with short white cilia; mid-section c. 1 mm long, brown to green; apical lobe linear, c. 0.8 mm long, obtuse. *Anther* c. 1 mm long, obtuse. *Pollinia* linear-clavate, c. 0.6 mm long, mealy, yellow. *Stigma* central, elliptical, c. 3 mm long, c. 0.8 mm wide, raised. *Capsules* not seen.

Distribution and ecology: Endemic in South-western Western Australia where it is found from Esperance to Duke of Orleans Bay. It grows in grey gravelly loam in moss pads on near-coastal granite outcrops and granitic headlands. The surrounding vegetation is sparse forest with scattered shrubs. Flowering: July and August.


Pterostylis voigtii **- Mt Belches, July 1995**


Pterostylis voigtii **- Duke of Orleans Bay, August 2013**

Pterostylis voigtii
- Hill 50, Esperance,
July 1995

Recognition: Characterised by very short stature, dull-green to bluish-green rosette leaves, thickish smooth scape, small plump flower that becomes reddish with age, short thickish clubbed free points that are often curved, brown patch at the top of the sinus, widely flared petals and a short elliptical labellum that is red-brown near the apex and with smooth margins. *Pterostylis voigtii* bears superficial resemblance to *Pterostylis nana* which is taller growing with thicker flower stems, has larger bright green leaves and larger flowers which do not turn reddish as they age, an ovate-oblong labellum and filiform free points on the lateral sepals.

Similar species: *Pterostylis voigtii* is similar to *Pterostylis parva* (also described as new in this paper) but this species has taller plants, filiform free points on the lateral sepals and an oblong labellum with scabrous to hirsute margins. The two species rarely grow together.

Notes: *Pterostylis voigtii* often grows more or less immersed in moss with the rosette leaves held tightly against the base of the scape.

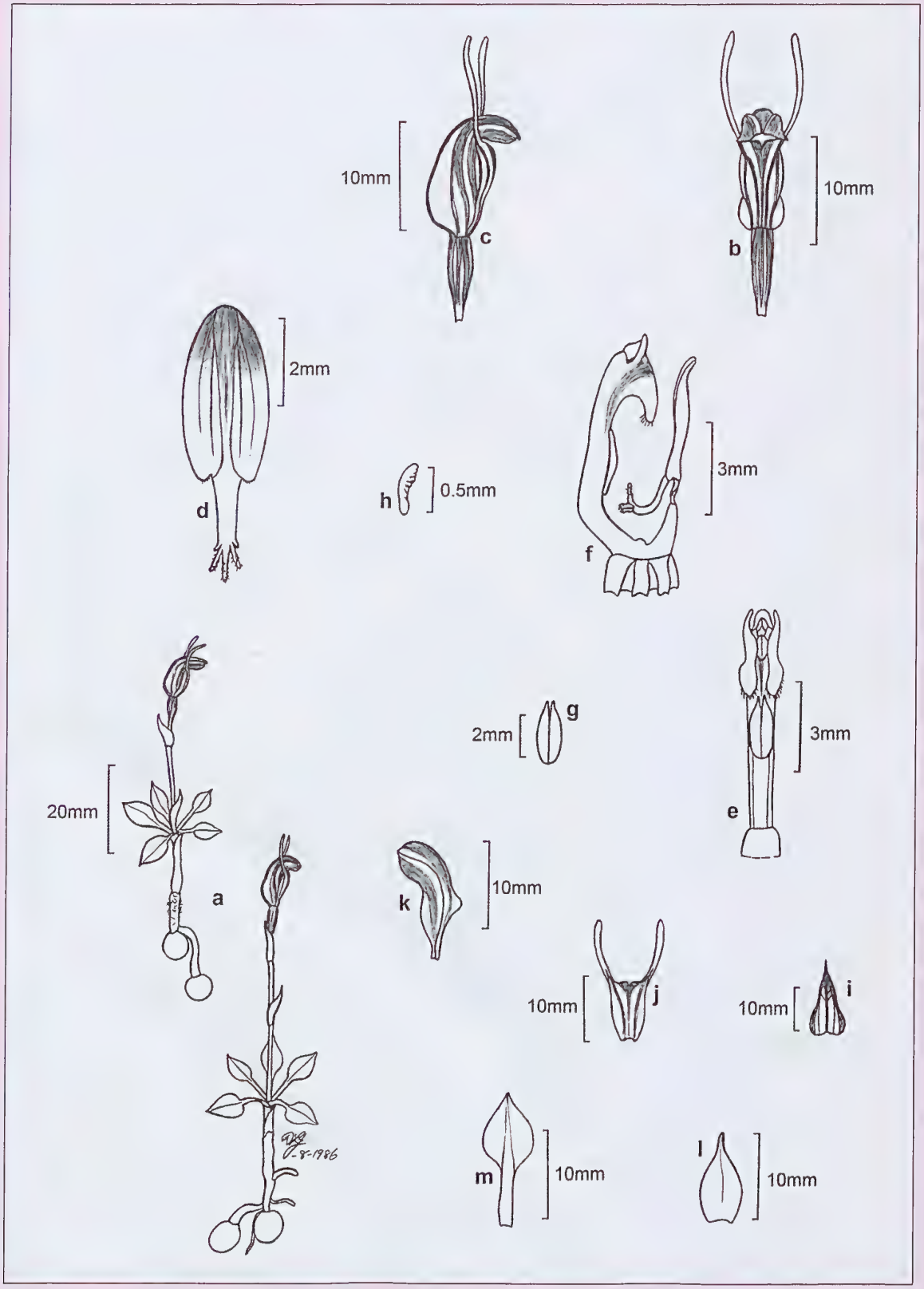
Conservation status: Reasonably common and conserved in national park and nature reserves. Suggest 2R according to the criteria of, Briggs & Leigh (1996).

Etymology: Named in honour of Donald (Don) Robert Voigt (1936-2011), enthusiastic orchidologist and historian from Esperance, WA, who discovered this species among several others, and provided valuable assistance to our research with specimens and locality information.

Other Specimens: WESTERN AUSTRALIA. Wharton Lookout above Little Wharton Bay, 20 August 1997, *G.Brockman 256* (PERTH); Mt Belches, Duke of Orleans Bay, 18 July 1995, *C.J.French (DLJ 14049)* (CANB); Wharton Beach Lookout, Duke of Orleans Bay, 18 July 1995, *C.J.French (DLJ 14045)* (CANB); Hill 50, Esperance, 19 July 1995, *C.J.French (DLJ 14050)* (CANB); Granite Headland overlooking Caravan Park, Duke of Orleans Bay, 18 July 1995, *C.J.French (DLJ 14047 & DLJ 14059)* (CANB).

Acknowledgements

Much appreciation to Anna Monroe for help with specimens at CANB; also the directors and curators at CANB and PERTH for giving us access to specimens. We also thank Jean Egan for preparing David Jones's drawings for publication, Mark Clements for access to photos of type specimens and numerous discussions, Marion Garrett and Karina Richards for technical assistance, the late Don Voigt and the late Ian Solomon for valuable field assistance. Special appreciation to Garry Brockman, Andrew Brown, Nye Evans, Barbara Jones, Marie French and the late Bill Jackson for companionship on field trips. Photos by Chris French unless otherwise credited.



***Pterostylis voigtii*, Hill 50, Esperance, WA**

a. flowering plants; b. flower from front; c. flower from side; d. labellum; e. column from front; f. column and labellum from side; g. stigma; h. pollinium; i. dorsal sepal; j. lateral sepals; k. petal; l. sterile bract; m. leaf. © D.L.Jones 31 August 1986

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Once Were Common: Southern Population of *Calanthe australasica* under threat

Text and photos by Alan Stephenson

A visit in November to see a population of *Calanthe australasica* (syn. *Calanthe triplicata*) at one of the several sites south of my home in Nowra, turned what would normally be an enjoyable outing into one of initially despair followed by anger. It is an uncommon species south of the Sydney district.

Calanthe australasica is known locally from several populations beginning about 40 minutes south of Nowra to the most southerly population another hour further south. It is one of four evergreen terrestrials in the Shoalhaven area, but unfortunately only one of these populations has any formal protection within the boundaries of a National Park. Herein lays the problem with what is essentially a common species, albeit within its preferred habitat, which in most cases can be considered wet forest and rainforest. This habitat is generally a well shaded forest with heavy leaf litter and close to a stream. However those who even occasionally look for these things will note some plants in more open well lit areas, such as exists in the area of concern south of Nowra. Leaves of *Calanthe australasica* can reach dimensions up to 180mm x 900mm and I have witnessed flower stems to 170cm.

Above: *Calanthe australasica* - head of flowers

This area is a State Forest which varies from light to medium tree cover and beside the small rarely flowing creek the habitat is more typical of what would be expected. The creek is at 33 metres above sea level and the forest section is a modest 50-60 metres in altitude. I was surprised at the time to see this species growing in this area but later found this was not so unusual.

The November visit was merely an introduction to a couple of friends who had not seen the species and some plants were initiating inflorescences at the time. However, as was obvious a logging operation had been underway for at least a month and the normally narrow but always clear track, was blocked by fallen trees. The higher section, 200 metres away was almost bare, with few trees remaining and the *Calanthe* population in that area had been obliterated.

Some photos were taken and the next day I contacted the local office of State Forests to express my dismay. I was informed the required surveys for threatened species had been undertaken but when I mentioned the obvious common species the answer was "so". It was quite clear that these were of no concern and no legislation existed which would be of any help and no consideration was given to perhaps contacting any organisation such as an orchid group or land care group which could have collected plants prior to logging.

Above: ***Calanthe australasica*** - individual bloom

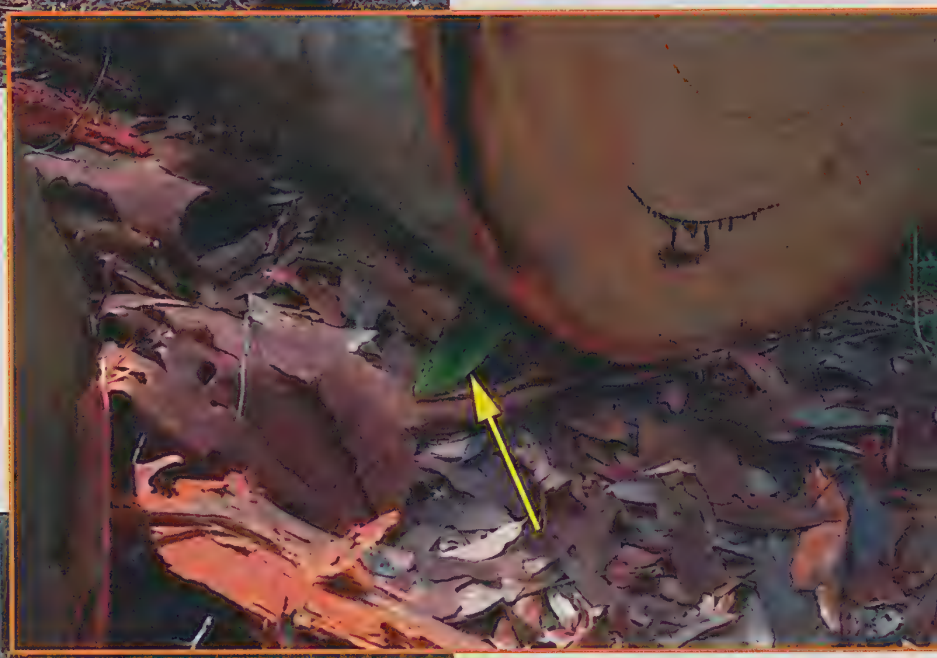
Above: ***Calanthe australasica*** - healthy plant in flower, pre-logging

Above: ***Calanthe australasica*** - this wonderful colony has now been completely destroyed

I am sure those responsible for the logging would be aware of the *Calanthe* and the ease with which plants could have been collected and grown. Logging is a destructive exercise, particularly when one considers the machinery used to perform this type of operation. I accept this but I am unable to fathom why plants, including orchids, which are easily rescued and grown, are confined to being mere litter on the forest floor.

It was at this stage the anger began to rise when I considered what I feel is bureaucratic intransigence resulting in hundreds of plants being lost and the area being unsuitable for the orchid for another twenty years, which is about how long the canopy would take to naturally regenerate and for any remaining plants to recolonise the site.

Above:
Calanthe australasica site after logging



Right:
Note leaf of
Calanthe australasica
under log

Below:
Calanthe australasica site after logging

Apart from *Calanthe australasica* I am aware of other orchids occurring on the site, including *Cymbidium suave, Dipodium variegatum, Dipodium punctatum, Chiloglottis diphylla, Orthoceras strictum, Cryptostylis erecta, Cryptostylis subulata, Bunochilus longifolius* (syn. *Pterostylis longifolia*), *Bunochilus tunstallii* (syn. *Pterostylis tunstallii*), *Corybas aconitiflorus* and a small array of other *Pterostylis* species. But what the hell, these are only common species. To this I say, common today, but with so-called legal and innocent logging operations, I wonder how long before one or more of these species becomes less common and therefore found on a threatened species register.

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Above:
Calanthe australasica site after logging

Left:
It may take many years, if ever, for ***Calanthe*** to return here

Calochilus cupreus the South Australian "Coppery Beard Orchid", its pollination, ecology and conservation

by Robert J. Bates

Above: *Calochilus cupreus* *(photo: June Niejalke)*

The story of a beard orchid in trouble, with Barbie & Ken Bayley and Joe Quarmby 2015.

History and conservation:

Calochilus cupreus R S Rogers is the only beard orchid restricted to South Australia. It was first seen about 1910 in the sand scrubs near McLaren Vale on the coast south of Adelaide, where it was collected by famous Adelaide orchidologist Dr. R.S. Rogers and his wife Jean in October 1918, just 12 months after clearance of native bush. Despite Rogers noting that his species was common in the area it was soon gone as bushland continued to be cleared for agriculture.

Today the district is mostly covered by vineyards. Land clearance and fire are often the cause of massed orchid flowering, followed by local extinction.

Calochilus cupreus was pretty much forgotten until the 1970's when Adelaide scientist, historian and conservationist Darryl Kraehenbuehl found a plant in sand scrub further down the coast. Thanks to Darryl's efforts, in the 1980's a small area of sand-scrub was saved (as *Aldinga Conservation Park*). A few years later a handful of *Calochilus cupreus* plants reappeared in this park and were seen in flower by members of the Native Orchid Society of South Australia (NOSSA) including Cathy and Malcolm Houston in the 1990's. Up to 12 plants were counted in 2004 by NOSSA members.

After years of being treated as a synonym of *Calochilus campestris* {Clements (1989)} the species was reinstated in the Census of South Australian plants in 2005.

Pollination:

There was even more excitement in October 2008 when NOSSA members weeding in Aldinga Conservation Park noticed a flurry of large orange banded flower wasps buzzing the beard orchids. Barbie and Ken Bayley were quick to capture the action on their digital cameras and so give us these first published images of *Calochilus cupreus* pollination.

Pollination of beard orchids by sexually attracted male scoliid wasps was recorded as early as 1946 by Fordham while Bower and Branwhite in 1993 observed the same wasps pseudo-copulating with the flowers of *Calochilus campestris* in New South Wales and identified the wasps as *Campsomeris tasmaniensis*.

Above: ***Calochilus cupreus*** flower and wasp wallpaper by Barb Bayley. Note the wasps in pseudocopulation mode.

Below: South Australian "Coppery Beard Orchid" ***Calochilus cupreus*** showing its signature copper-red petal as well as yellow-banded flower wasp pollinator. *(photo: Ken Bayley)*

Calochilus cupreus plants can be distinguished by their long leaf, freely opening flowers, copper red patch on the petals and the way the flowers appear to stare at the observer.

Beard orchid (*Calochilus*) flowers produce a copy (kairomone) of the mating pheromone released by female scoliid wasps to attract males of their species, sometimes from a kilometre away. The males of *Campsomeris tasmaniensis* (yellow flower wasps) are known to travel in groups before buzzing the flowers, grasping the hairy labellum (a female wasp look-alike or decoy) and pseudo-copulating with it, by probing with their genitalia, no doubt further aroused by the sensation of the hairy orchid labellum tickling their undersides.

Some observers describe the wasps as having orange bands others say yellow but colour intensity appears to change with time of day and there is currently only the one wasp species known to be involved in beard orchid pollination.

Some species of beard orchid appear no longer able to attract a wasp pollinator and must self pollinate. We have observed black and red wasps as well as gold and black striped wasps visiting other beard orchids in South Australia. Scoliid wasps occur worldwide, with five species in Australia. The hairy yellow flower wasp is my favourite with the iridescent navy 'blue scoliid wasp' from Qld a close second.

It seems likely that *Calochilus cupreus* might soon lose its species status and be regarded as a subspecies of the widespread *Calochilus campestris*, if this occurs the Aldinga plants will still be the only known remaining population of that species in South Australia.

The Type location of *Calochilus campestris* is Port Jackson on the east coast of NSW, very different from Adelaide in climate. I have observed *Calochilus campestris* near Sydney, and consider South Australian *Calochilus cupreus* as not being a good match with those, yet some *Calochilus campestris* populations in Victoria do appear very similar to *Calochilus cupreus*.

Vandalism and the loss of *Calochilus cupreus* at Aldinga:

Two years ago a small bushfire occurred adjacent to Aldinga Conservation Park. Four fire trucks unnecessarily entered the Park and trashed the site where the copper beard orchids grew.

During the 2014 flowering season no flowers of the endangered beard orchid were found and it appears most if not all tubers were compromised by the weight of four large trucks repeatedly spinning their wheels in the loose sand which *Calochilus cupreus* prefers. Any member of the public damaging a plant of any endangered orchid would face a hefty fine, but in this case nothing was done. Let's hope that *Calochilus cupreus* can recover. It certainly has a good local population of *Campsomeris* flower wasps to help achieve this.

Acknowledgements:

Thank you to staff at Adelaide herbarium, particularly librarian Lorae West; thanks are due also to other NOSSA members for the use of their images ie June Niejalke.

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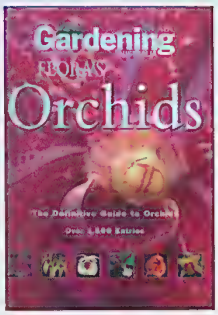
FLORA'S ORCHIDS

Senior Consultant David P. Banks



Part of the best-selling *Flora* range, this is the definitive guide to orchids with over 1,500 entries. Ranging from the unique to the unusual, the beautiful to the bizarre, orchids have long symbolised beauty, elegance and refinement. *Flora's Orchids* presents more than 1,500 varieties of this highly variable plant family, with entries accompanied by at least 1,300 stunning colour photographs. The orchids are arranged by genus in an A-Z format. Each entry first lists the scientific name in Latin, often accompanied by a Latin synonym and, where appropriate, the translated common name. Plant spread and height are listed, followed by symbols indicating plant type, natural growing locations, growing conditions, frost tolerance, preferred temperatures, type of flower, and preference for pot or mount cultivation. The brief descriptions explain the type of genus, geographic area, and flowering and dormancy seasons. There is a wealth of sound cultural and propagation advice.

AOR Editor David P. Banks was the Senior Consultant for *Flora's Orchids* and is also credited as the Principal Writer. Especially valuable for aspiring botanists and average gardeners is the background information that precedes the dictionary text and explains orchid varieties, taxonomy, hybridisation, history, cultivation, propagation, and more. The history section delves into the fascinating historical development of the plant for culinary and medicinal usage and also explores the use of orchids in folklore and literature. A detailed cultivation table for each of the species is found in the appendix. This work is regarded by many as the logical replacement of *What Orchid Is That?*

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ORCHID SPECIES OF THE SHOALHAVEN: NSW Australia

by Alan W. Stephenson

Alan Stephenson lives in Nowra and is well placed to give the first botanical treatment of the native orchids of the Shoalhaven region. He has extended the distribution ranges of a number of uncommon and rare species, as well as discovering new taxa. This 68 page book is packed with both information and superb photography, almost exclusively taken by the author. All of the recorded orchid species native to the region are included and illustrated.

The introductory chapters discuss the area covered by this book, the structure of the orchid plants, their natural habitats, parts of an orchid flower, orchid structure and the pollination of orchids. This is followed by the main section of the book that alphabetically lists and discusses each species, with information such as Common Names, Recent Synonyms, Flowering Time in the wild, plus a brief description of the plant, flowers and preferred habitat. There are many terrestrial species fully covered as well as a number of epiphytic and lithophytic genera that are found in the area.

The quality of the printing and colour reproductions are sparking. This is a wonderful field guide that will aid even the most novice naturalist or native orchid enthusiast and confidently assist them in identifying examples they encounter in the field. It represents excellent value, as it also covers many species found naturally along the East Coast of New South Wales.

68 pages,
225 colour photos.
210mm x 148mm.
Softcover.

OUR DISCOUNT PRICE $A19.95 (Incl.GST)
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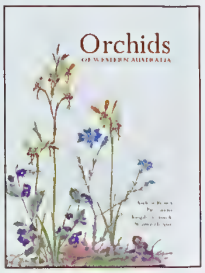
ORCHIDS OF WESTERN AUSTRALIA

by Andrew Brown, Pat Dundas, Kingsley Dixon & Stephen Hopper



Written by three of Western Australia's most prominent orchidologists and featuring over 200 full-page, colour illustrations by renowned botanical artist Pat Dundas, *Orchids of Western Australia* is the first modern text cataloguing all 409 known species.

This comprehensive resource for hardened enthusiasts and initiates alike features a wealth of information in a single volume – from a detailed introduction to WA orchids to information on each species, including who named them, where they were first collected, their habitat, distribution, flowering period, size and distinguishing features. This book is the culmination of decades of work by WA's foremost experts, each dedicated to the conservation of one of the world's most important regional orchid floras.

420 pages.
325mm x 245mm.
Hardcover.

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ORCHIDS IN YOUR GARDEN

How to grow orchids in the backyard

by Robert Friend

It sounds too good to be true, but orchids are as easy to grow in the backyard as a lawn or a bed of roses. Despite their exotic reputation, the everyday gardener can grow orchids without special pots or greenhouses.

The book shows you haw to introduce orchids into the garden, by attaching them to trees, fixing them on rocks and walls, or planting them in garden beds. With more than 150,000 species and hybrids of orchids in the world, there are plants suitable for every garden.

Robert Friend draws on a lifetime's experience with orchids to explain how to choose the right orchid for your climate and how to landscape orchids in different types of gardens. Ranging from tropical to cool climate areas, from large acreages to small courtyard gardens, almost every backyard can enjoy the best of one of nature's wonders.

144 pages.
Colour and B&W.

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THE ALLURE OF ORCHIDS

by Mark A. Clements

From 1788 when First Fleet artist George Raper painted *Diuris punctata*, the botanical world has been fascinated by Australian orchids. Hundreds of orchid images from the National Library of Australia's collection, with words by Mark Clements from the Australian National Herbarium in Canberra, make *The Allure of Orchids* a must-read for lovers of flowers, original paintings and our indigenous orchids. Many of these unique botanical illustrations are being showcased to a wider audience for the very first time.

The Allure of Orchids features an essay by internationally recognised orchid expert Mark Clements, accompanied by a portfolio of illustrations, both historical and modern, of this alluring species. In it you will find works by around 25 artists, including the extraordinarily detailed lithographs of early botanical illustrator Ferdinand Bower, Ellis Rowan's beautiful paintings, the delicate watercolours of Margaret Cochrane Scott, and many more.

The Allure of Orchids is divided into two parts; Terrestrial or ground orchids and Epiphytic or tree dwelling species. Clements says, "These illustrations can be enjoyed simply as works of art and part of our rich and colourful Australian illustrative heritage. But, significantly, they are also part of the scientific record of this country, particularly during the early exploration of the continent."

Interestingly, a lot of the old and traditional Latin botanical names have been used in this work. The author makes a significant number of anecdotal notes and comments throughout the book, to keep the reader fully informed. It is a "must have" book for those interested in Australian orchids and historical botanical art.

159 pages, colour.
284mm x 233mm.
Hardcover.

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ORCHID: THE FATAL ATTRACTION

by Anne Ronse

The subject of orchids is one close to the heart of many floral designers. some feel it's a privilege to wo ith these flowers and plants h der how many desi investigate the em rather than just them. The text by Dr Anne is informative and enthusiastic and the photography is superlative! It's so good that the flowers literally drip off the pages capturing the imagination and the heart. If you want something special, are addicted to orchids and want to luxuriate in glorious text and images; this is the book for you.

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142 pages. Colour. Hardcover.

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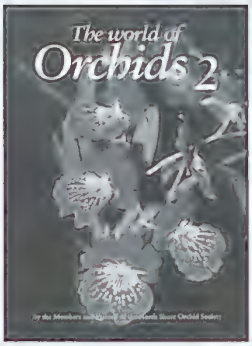

THE WORLD OF ORCHIDS – 2

The World of Orchids – 2 has been written by members and friends of the North Shore Orchid Society about orchids grown in Sydney and its environs, and we are indebted to those people for their time and effort.

It has been produced to cover a large range of genera to help not only the novice, but also the experienced grower in their present fields of interest, and to tempt and encourage them to try other genera.

It should be pointed out that the methods of culture used by the authors are those which they themselves have found successful. Growers should try any changes to their own culture gradually and on a few plants first, as orchids respond differently under different conditions.

80 pages. Colour and B&W.

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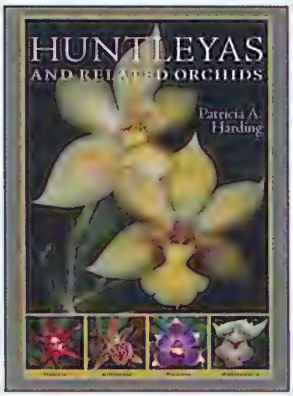

HUNTLEYAS AND RELATED ORCHIDS

by Patricia A. Harding

Revered by avid orchid collectors for its delightful, star-shaped flowers, *Huntleya* is a small group of orchids found low in the forest. *Huntleya* is a small orchid genus that includes fourteen species. They occur in wet cloud forests at medium altitudes of Guatemala, Costa Rica, South America down to Bolivia. The type species *Huntleya meleagris* also occurs in Trinidad. Besides their striking colours — from deep blue to waxy red, royal purple to almost black — flowers of this group are known for their distinctive shapes, patterns, and textures. As appealing as these lovely tropical orchids are, their identification has been confused since the first species was described in the mid-1800s. Recent DNA studies have led to a clearer understanding of relationships and, as a result of this clarity, it is now possible to sort out the taxonomic problems and identify the characteristics that set species apart. In this first book devoted to the *Huntleya* alliance, author Patricia Harding presents evidence from the scientific literature, other growers, and her own experience that will enable orchid enthusiasts everywhere to identify their plants and grow them successfully. Patricia A. Harding is an accredited American Orchid Society judge who has been growing and photographing orchids for three decades.

260 pages, 150 colour photos. Hardcover.

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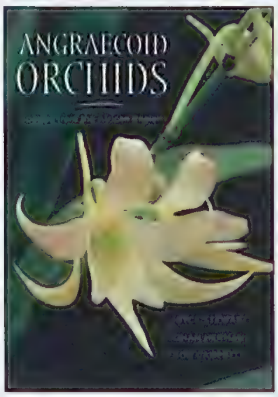

ANGRAECOID ORCHIDS: Species from the African Region

by Joyce Stewart, Johan Hermans, and Bob Campbell

These so-called 'Jewels of Africa' with their sparkling flowers, distinctive growth habit and floriferous nature are much prized and this account, the first to include the Angraecoid orchids of both Africa and Madagascar, is long awaited. It brings together, in a single volume, descriptions of all 690 species in this intriguing group of orchids and will be the essential reference for all Angraecoid orchid enthusiasts for years to come. Including such horticulturally important genera as *Angraecum*, *Aeranthes*, *Aerangis* and *Jumellea*. Stewart, Herman and Campbell have all spent time in various parts of eastern and southern Africa and precise ecological information relating to habitat, altitude preferences and flowering season of individual plants will be particularly helpful to growers. The diagnostic features of each genus are illustrated and over half the species are accompanied by exquisite photographs taken in both wild habitats and in cultivation.

432 pages, 290 colour photos. 185mm x 265mm. Hardcover.

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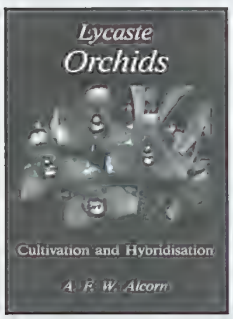

LYCASTE ORCHIDS - Cultivation and Hybridisation

by A.F.W. Alcorn

Lycaste orchids are easy to grow, and they produce flowers that range from the beautiful to the bizarre. No book previously has provided detailed cultural requirements of the Lycaste, and this book should fill that gap, and encourage new growers to take up the cultivation of this beautiful genus. A section on hybridising contains valuable information on inheritance and genetics that will benefit any hybridiser, not just the grower of Lycastes, as well as helpful hints on how to avoid pitfalls in your hybridising program. Michael Hallett, a friend of Fred Alcorn for a number of years, co-wrote this book with Fred and has completed it posthumously. He has a background in genetics, research and botany, and a passion for plants, especially orchids.

237 pages. Colour and B&W.

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MASDEVALLIAS: Gems of the Orchid World

by Mary E. Gerritsen and Ron Parsons

For the species orchid enthusiast, cool to intermediate orchid grower, or anyone simply "mad about Masdevallias," this is a first complete reference to these collectible new world orchids. An inspiring tribute to their beauty and a practical guide to their care, the book offers detailed advice on all aspects of culture. For those enthusiasts who are up to a challenge, chapters on propagating, showing, and registering Masdevallias are also included. Ron Parsons is one of the finest nature photographers in the world and has an encyclopaedic knowledge of species orchids, with the genus *Masdevallia* being one of his favourites.

300 pages, 149 colour photos. 190mm x 255mm. Hardcover.

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Toowoomba Orchid Society Diamond Jubilee Conference & Show: 24-25 July 2015

The Toowoomba Orchid Society was formed in 1955, so 2015 is our Diamond Jubilee year. To celebrate this milestone the club is holding a Conference and Show to celebrate our 60th Birthday. This event will be staged on the 24th & 25th of July 2015 at the Clive Berghofer Centre at the University of Southern Queensland, Toowoomba.

Vendors specialising in all popular genera have been invited, both International and throughout Australia. The Lecture program is also taking shape. The show will feature Society displays and offers very lucrative prize money of $1,500 for Champion Orchid and $1,500 for Best Society Display. There will also be a generous run down of prize monies in all sections. To compliment the orchid displays will be Photographic, Art and Floral Art competitions.

As part of the celebrations, a meet and greet will be staged on the evening of Thursday 23rd where registrants, while enjoying refreshments will be able to have first opportunity to view and photograph the champions as well as mingling with vendors and a chance to pick up a bargain. On the evening of Friday 24th the society will host a dinner for registrants and guests as well as presentation of prizes. It should be a fun night with a very well known (in orchid circles) MC.

In conjunction with the Conference, local tourism operators will be offering day trips to the nearby Granite Belt with award winning wine and food facilities and several other tourist options and greenhouse visits. Toowoomba, the Garden City of Queensland is famous for its Carnival of Flowers Festival held in September each year but even in July has some spectacular displays in our parks and gardens.

And if your interests are indoors there's nothing quite like a cosy chair in front of a roaring fire. Accommodation is quite varied from budget Motels to some of the most magnificent heritage homestead B & B's so all tastes are well catered for.

Being around 700 metres above sea level provides Toowoomba with the best of several growing environments allowing plants from Temperate to Sub-tropical climates to thrive. A fact borne out by the diverse range of plants showcased at any of our four shows throughout the year.

So come along and help us celebrate turning sixty and enjoy some "high country" hospitality and orchidaceous fun. It's not too early to plan a special outing for your club.

More details on our website

www.toowoombaorchidsociety.org.au

as they come to hand. ■

John Terry
President, TOS
Email: jht@activ8.net.au

Dendrobium **Mousmee**

Australian Orchid Review

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2015 ORCHID EVENTS – *What's on!*

April 11-12 Collector's Plant Fair – Hawkesbury, NSW
April 17-18 Castle Hill International Orchid Fair – Sydney, NSW
May 8-10 Mothers Day Weekend Spectacular – Port Macquarie, NSW
May 15-17 Orchids Out West – Hawkesbury, NSW
June 25-27 Parramatta & District Orchid Society – Winston Hills Mall, NSW
June 27-28 Mingara Orchid Fair & Show – Tumbi Umbi, NSW
July 4-5 Tinonee Orchids Open Day & Show (+ Free Workshop) – Taree, NSW
July 4-5 Victorian Country Orchid Club Challenge – Cobden, VIC
July 24-25 Toowoomba Orchid Society Conference & Show – Toowoomba, QLD
July 26 Hills District Orchids – Winter Open Day – Northmead, NSW
August 1-2 WA Orchid Society – Workshop & Show – Perth, WA
August 14-16 St. Ives Orchid Fair – Sydney, NSW
September 17-19 Parramatta & District Orchid Society (Orchid & Clivia Show) – Winston Hills Mall, NSW

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Orchid growth in *Pinus radiata* bark

Comparative photo from Orchid growing substrate trial conducted at Lincoln University, New Zealand April, 2012.
(Photo unaltered)

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PATHOGENS NOT KILLED • some sources of fresh bark contain harmful pathogens • bark is un-aged and pathogens are **not killed** • pathogens can **spread easily** in fresh bark	**INHIBITS / KILLS PATHOGENS** • temperatures exceed 150°F during the aging process • pathogens cannot grow and any present are **killed** • natural colonies of beneficial micro-organisms flourish
PATHOGENS = HIGHER RISK • **fewer beneficial microbes** to resist growth of pathogens • pathogen growth **reduces beneficial microbe population** • pathogens **greatly increase risk of disease** in plants • **more cost and effort** to correct pathogenic growth	**BENEFICIAL MICRO-ORGANISMS RESIST PATHOGENS** • ***Penicillium sp.*** and ***Trichoderma sp.*** are just two of many beneficial microbes, that flourish during the aging process, that **prevent pathogen growth** • Orchiata creates a **healthier environment** for plants
REPELS WATER • natural waxes in fresh bark are **hydrophobic & repel water** • fresh bark **does not** initially hold water & nutrients well • **inferior delivery** of water & nutrients when first potted • increased watering / nutrient requirement means **more cost**	**HOLDS & RELEASES WATER & NUTRIENTS** • aging removes waxes from surface of bark chip, allowing Orchiata to **hold water & nutrients** on outer surface • aged surface provides **instant & consistent rewetting** • excellent delivery of water & nutrients **from day one**
pH TOO ACIDIC AND POOR CHEMICAL BALANCE • fresh bark is **too acidic** for many orchid species • requires **additional expense, time and effort** to correct pH • plant phytotoxic compounds can **suppress plant growth**	**IDEAL pH AND CHEMICAL BALANCE** • Orchiata's **pH 5.5 - 6.5 is ideal** for most orchid varieties • Ideal pH & low EC reduces need for additives or flushing • **aging removes** growth suppressive compounds

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Must be seen in 2015

2015 DIARY

Tinonee Orchids will be at the following shows and Orchid events.

April 11-12 ..... Collector's Plant Fair - Hawkesbury NSW

April 17-18 ..... Castle Hill International Orchid Fair - Sydney

May 8-10 ..... Mothers Day Weekend Spectacular - Port Macquarie

May 15-17 ..... Orchids Out West - Hawkesbury NSW

June 27-28 ..... Mingara Orchid Fair & Show

July 4-5..... TINONEE ORCHIDS OPEN DAY & SHOW

July 26 ..... Hills District Orchids - Winter Open Day

August 1-2..... WA Orchid Society - Workshop & Show - Perth

August 7-9..... National Orchid Extravaganza - Dural

August 14-16..... St. Ives Orchid Fair

September 26-27 .... Plant Lovers Fair - Kariong

September 27 ..... Hills District Orchids - Spring Open Day

October 2-4 ..... Southern Orchid Spectacular - Cronulla

Oct 31- Nov 1 ..... Gold Coast - Tweed Orchid Fair

December 6 ..... Hills District Orchids - Summer Open Day

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